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NOTES ON MODERN COSMOLOGICAL SPECULATION

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E. Finlay-Freundlich's *Cosmology*[1] is a recent addition to the series of monographs which are being collected under the title of *Foundations of the Unity of Science,* in what will eventually make up the initial two-volume unit of the late Otto Neurath's positivistic project, the *International Encyclopaedia of Unified Science.*

We may learn what *Cosmology* is here intended to signify from the opening sentences of the monograph.

> In cosmology an attempt is made to answer several questions. How is the universe built up as a whole? Do the laws of nature which we derive from experience gained in our "neighbourhood"—be this the earth or the solar system or the galaxy—remain applicable if we imagine this "neighbourhood" extended until it comprises the whole universe? Is an infinite world compatible with the laws of nature or must we restrict the world to a finite size if we wish to avoid insurmountable difficulties of principle?[2]

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[1] E. Finlay-Freundlich, *Cosmology.* "International Encyclopaedia of Unified Science," Vols. I and II; "Foundations of the Unity of Science," Vol. I, No. 8; Chicago: Univ. of Chicago Press, 1951. Pp. iv + 59. It will be remembered that the *International Encyclopaedia of Unified Science* is intended by the energetic group in charge of its realization to explore the foundations of the various sciences and to aid the integration of scientific knowledge, with a view towards the preparation of a wholly scientific culture of humanity.

[2] *Ibid.,* p. 1.

Of the foregoing questions the principal one—we may judge from the insistence of the author—is the one, *Is the universe finite or infinite?*[3] Thus a cosmology, in the present context, is a scientific theory of the universe designed to answer questions about determinate size and structure. The ideal aimed at by cosmological speculation is, in the author's view, "a unified picture of the universe, in which the mass, size and geometry of the universe would follow from a firmly established theory of matter and energy."[4] And *Cosmology* is concerned wholly with stating the actual position of cosmological investigation. As such it presents a rather formal comparison of the application of two great physical theories—the classical-mechanical and the relativistic—with the cosmological problem, exhibiting all along the line the relation of the mathematically expressed discourse of physical theory to the statement of the observed facts with which theory must agree if it would hold our attention.[5]

The monograph breaks down into six parts. Of these the first is the Introduction, in which the problem of cosmology is stated, as above, with some brief remarks of a historical character. Then an account is given of some "earlier discussions of the cosmological problem on the basis of Newton's law of gravitation." There follows an account of the observational background of cosmology. The major part of the monograph is taken up by the two following parts, in the first of which the actual problem of cosmology is discussed on the basis of classical theory. The second of these parts deals with the relativistic investigations in the same field. The work concludes with brief remarks on the time-scale of the universe. Some amplification of this outline is required for an appreciation of the quality of Professor Finlay-Freundlich's very interesting and valuable work.

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[3] *Ibid.*, pp. 5, 27, 34, 37, 40-41, 51-52, 55, 56-57.

[4] *Ibid.*, p. 56.

[5] It would appear from the character of the rather skimpy bibliography provided on page 59 that very definite restrictions have been placed upon the field accorded to cosmological studies. What are known as cosmogonical studies would appear to have been left deliberately out of all consideration. According to Abbé Lemaître (*The Primeval Atom* [New York: Van Nostrand, 1951], p. 140), a cosmogony is a scientific theory of the universe which attempts to answer the question, What are the initial, ideally simple conditions from which the present universe, with all its complexity, might have resulted through the natural interplay of the known forces? Cosmogony, therefore, places the emphasis upon questions of development; but it would be a mistake to consider that cosmogony can neglect questions of structure and size, just as we are not founded in thinking that the cosmologist can neglect questions of development, which turn up to preoccupy Professor Finlay-Freundlich towards the close of his monograph. As a matter of fact, there would appear to be no wholly good reason for the restriction which the author of *Cosmology* places upon his subject matter. One finds it difficult to understand why the bibliography contains no reference to the work of Jeans, Friedmann, and Lemaître.

I

Historical discussion is restricted to the barest minimum because of the fact that what is being discussed is the cosmological problem in the form in which cosmologists now face it. If the results obtained by Hubble are accepted, so that an expanding universe is the universe the cosmologist has to work with, it is clear that the modern cosmological problem is rather different from the problem which was envisaged by investigators up to about 1929. Furthermore, from the standpoint of theory, the most important date would be 1917, when Einstein gave a first solution of the cosmological problem in terms of the general theory of relativity, in a manner which greatly stimulated hopes of an eventual definitive solution. With the discovery of the expansion of the universe (for it is in this sense that the greater body of cosmologists interpret Hubble's findings), the observational basis of the cosmological problem changed, and both classical and relativistic theory now had to be tested against the new fact. The particular favor with which the author regards the relativistic theory derives from the fact that the relativistic analysis of the problem ''discloses the full variety of possible solutions and promises in the end a very much deeper understanding of the structure of the universe,''[6] even though, ''as far as the representation of observational facts is concerned, classical mechanics, no less than the theory of relativity, offers explanations for practically all observations.''[7]

A point of criticism arises here. While one may accept the lack of historical information in *Cosmology* in view of the fact that the author is restricting his account to the actual problem of cosmological research, still, since *Cosmology* is an integral part of a rather large cultural and educative enterprise, one wonders why some brief mention was not made of the fact that a cosmological problem has accompanied the development of astronomy since the earliest times and that, in the opinion of Pierre Duhem, the methods and spirit of Greek cosmological speculation were not alien to the modern methods and spirit.[8]

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[6] *Cosmology*, p. 2.

[7] *Ibid.*

[8] It is to be hoped that Hermann et Cie, of Paris, will soon fulfill their intention of reprinting the first five volumes of Duhem's great work and

II

The discussion of the cosmological problem on the basis of Newton's law of gravitation, and in a prerelativistic context, is restricted to showing the unsuitable character of that solution of the cosmological problem which offers us an infinitely extended receptacle for matter which is infinite in amount though distributed so that the density of that matter is everywhere finite and not zero. The author shows how the main difficulty which arises in the consideration of such a universe centers in the fact that the gravitational potential, which measures the effect of all attracting particles on a point, would tend in the limit to infinity. It is then shown how the notion of a hierarchic structure—according to which, starting with our sun, we may envisage the universe as built up according to a special law of distribution of matter where systems of stars like our sun would be themselves elements of larger super-stellar systems and so on (de Morgan's flea theory)—would resolve the difficulties arising from unmanageable values of the gravitational potential as well as many other difficulties. However, once the expansion of the universe became the accepted fact, the problem changed essentially, in that it was no longer possible to consider the possibility of a ''static solution'' according to which over-all stability and equilibrium incorporated stages of local mobility. The over-all picture itself was one of mobility.

The most important of the statements made in this section concern the fundamental assumptions which hold for any cosmology.

> Every investigation of the structure of the universe has to start from a knowledge of, or from assumptions about, the distribution of matter in space. And since obviously all experience will always be restricted to a part, probably to a small part, of the universe, no exact knowledge of the distribution of matter over the whole universe can ever be claimed. We therefore attempt to infer from the observed distribution in our ''neighbourhood'' how matter may be distributed beyond the surveyed part of space. This is the basic assumption in all cosmological considerations.[9]

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that they will also proceed as soon as possible to the publication of the material which still remains in manuscript. Duhem's influence upon the logical positivists has been profound; his version of Thomist philosophy, which is very defective, would appear to have been accepted by logical positivists as the true version. It is rather essential, therefore, considering the present state of controversy over the relation of science to the philosophy of nature, that Duhem's views should undergo a thorough examination by Thomists. See the supplementary note.

[9] *Ibid.*, p. 3.

The character of this assumption obviously places restrictions upon the degree of certitude which may be expected in cosmology. Both in the earlier period and at present, the accepted assumption is that of a uniform distribution of matter in space. But while in the earlier period this assumption was applied only to stars, considered as the basic building bricks of the universe, now the assumption is applied only to the extragalactic regions. It has been shown by the efforts of a number of astronomers that the law of uniform distribution does not hold within the galaxy. Here we may note in criticism that no indication is given, such as might be expected in a work of cultural education, as to the character of the extraordinary labors which have provided us with our rather exact notion of the structure of our own galaxy. Yet the work which resulted in that notion is one of the most instructive in the history of astronomy, considered as one of the sciences of nature.[10]

III

The section dealing with the observational basis of modern cosmology is an exact and brief summary of the various methods for the determination of distance, together with some analysis which reveals the interrelatedness of the results determined by different methods. Most of the material here presented is dealt with more amply in such works as Jeans's *Astronomy and Cosmogony.* The account of the special difficulties which have to be considered in dealing with distances as determined by means of the red-shift is valuable. Some indications of the degree of accuracy to be expected in the work of measurement should have been given, in view of the importance of this factor in the epistemological consideration of cosmological conclusions.

IV

The discussion of the cosmological problem on classical grounds, in the fourth section of *Cosmology,* deals with attempts to solve the cosmological problem as it presents itself as involving factors unknown before Hubble's work on the red-shift and by the methods which would have been used by an analyst of the Newtonian period. It is indeed possible to construct Newtonian world systems which accord with the observations. The discussion of such systems in

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[10] There is exhibited here a lack of cultural balance in the neglect to mention even the name of J. C. Kapteyn in connection with a reference to the structure of our galaxy. But as we have already remarked, the historical reference in *Cosmology* is cut to the barest minimum, even, one might say, to a ridiculous minimum.

Cosmology follows the lines of the much fuller discussion in E. A. Milne's *Relativity, Gravitation and World Structure,* chapter 16. The objections advanced against such systems are the following. First, while it is possible in such systems to avoid the occurrence of ''catastrophic singularities'' in the life of the universe, this is achieved only at the cost of introducing the *ad hoc* hypothesis of a cosmic repulsive force for which, so far, no other proof or indication exists. It may be remarked here that just as a philosopher finds no justification for Occam's razor as a principle of philosophical understanding of reality (for the reason that a philosopher has to accept what he finds in the world just as it is, precisely because it is), so too a philosopher may not encourage a bias one way or the other as regards singularities in the life of the universe. If singularities there happen to be, then that is the case—mathematical generality and the velleity of smooth curves notwithstanding. The point to remember here is that while the cosmological theory is a mathematically formulated discourse which derives its intrinsic cohesion from mathematical formality and generality, this theory, to have interest of a cosmological kind, must apply primarily to a conceptualised universe of assumed features and secondarily, and under the conditions of a physical verification, to the real universe which is rather heavily loaded at all points of its attitude with singularity. Perhaps the major philosophical problem here is the one about the relation of mathematical entities to real existents. The thesis of the degrees of intellective abstraction which may be found in the work of St. Thomas does provide a basis for the solution of the problem of the applicability of mathematical propositions to the world of existent things. I hasten to add, though, that the solution is not written down in an immediately derivable form in St. Thomas. Bertrand Russell appears to be well aware of the necessity of finding a solution to this problem, as we may gather from his appreciation of the inadequacy of the Peano postulates to found the numbers we ordinarily use for counting. There is no evidence available to support the view that the positivists have a solution for this problem. The talk of the *fortunate circumstance* which endows the protocol with ordinal characteristics veils the failure of the positivist to attend to the reality of knowing.

The second objection to Newtonian world systems takes the form of the criticism that such systems do not lead to a reply to the question whether the universe is infinite or not.

> The uncertainty with regard to the possible finiteness of space could be eluded simply by attributing to space the metric properties of a finite, closed, non-Euclidean space. However,

> since the classical theory does not establish any link between geometry and gravitation, this would represent a further *ad hoc* hypothesis, which could be neither proved nor disproved, unless our empirical knowledge of the structure of the universe could be extended to distances not small compared with the radius of curvature of space. However, a priori no possibility exists of predicting the value of this radius of curvature. And even should our experience prove the correctness of such a hypothesis, our understanding of the origin of the metric properties of space would not have been advanced.[11]

Here, the author's preference for relativistic theory would appear to allow him to forget that the relativistic solutions of the problem also introduce *ad hoc* devices. Furthermore, if Milne's analysis of Newtonian world systems is correct, then the pertinent question is, Why does the Newtonian analysis reproduce the results of general relativity obtained via the tensor calculus? For the author of *Cosmology,* the answer to this question takes the form that in the relativistic treatment the field equations must lead in the first approximation to laws of motion similar to those of classical mechanics.

One feature of the modern cosmological approach, mentioned at the beginning of the fourth section, is the *cosmological postulate.* The formulation of this postulate varies with the different workers. In E. A. Milne's account, the postulate (which for Finlay-Freundlich requires that the observed phenomena be representative of the whole universe) has a special content dependent upon the prior determination, for reasons which have a rather philosophical flavor, that the universe is infinite,[12] so that to any observer placed anywhere in the universe this universe will always present the same appearance of mutual recession of all bodies observed from that place. As such, the cosmological postulate demands a very singular state of affairs, one which E. A. Milne accepted as more intelligible than that in which a finite number of bodies would be moving in a group through infinite space. In general, the postulate is usually phrased in the more popular accounts so as to deprive the picture of the whole universe of all features which tend to grant man any privileged central position. As such, there is more than science in the postulate. It is irrelevant to a study of the universe as a whole whether one shall determine at the start that man does or does not occupy a central position in the universe. At the start, beginning where he is, man considers the universe; and he must take it as he finds it. If he is taking it through the medium of quantitative measurements of motions and distances, much as he may wish to obtain an over-all picture as from the outside, *that* he is not circumstanced to obtain, except at the expense of substituting for the real universe one which exists only in the region of conceptual construction. As long as he remains wedded to a positivistic version of knowing, it is indeed difficult to see how the only available position for real observations should not be a privileged one. On the other hand, if, even through the medium of quantitative measurements of motions and distances, it is possible to attain, though very indirectly, the natures of things, then the cosmological postulate may be dispensed with, since its place will have been taken by the principle of the intelligibility of being, according to which we may proceed, with all due method, in our effort to understand things and the causes of things, whether through the direct though very limited means available to a philosophical physics, or through the indirect but more detailed researches of modern physics. It may be, of course, that the cosmological postulate is brought in so as to insulate cosmological speculation from extraneous notions of finality, creation, and the like. Nothing could be less useful than a bias of this kind. Since cosmology works with physical or with geometrical theories which are designed to apply to idealized distributions of matter in what is conceived as a single universe (whether finite or infinite in fact), considerations concerning finality and creation could only arise after the achievement of cosmological theory; and no good reasons exist for excluding such considerations in principle. Even on positivistic views, it can neither be said nor denied, at the start, that man occupies some sort of privileged position in the universe. The protocol occurs where it occurs. If it were discovered that rational life exists only on the earth, then man's position in the universe would be highly special. As for the question of geometrical position, as regards the earth, one would rather have it shown as a deduction from a complete theory that our position and physical circumstances were unprivileged rather than have it assumed at the start, when the possibility then always remains that the assumption is unfounded. The postulate appears to be redundant in some of its forms because the theoretical side of cosmology is developed in the conceptual region of idealized distributions of matter, where privileged position is excluded from the moment that a uniform distribution of matter is assumed. Just as the notion of space is the key notion to examine in a philosophical appreciation of the applicability of cosmological theory to our universe, so the cosmological postulate is the key feature to consider in the epistemological analysis of cosmological systems. As a poorly stated version of the much misunderstood principle of the uniformity of nature, the cosmological postulate is, we may add, a necessary adjunct to theory. In the form accepted by the author of *Cosmology,* which states that *the appearance of the universe must be the same for every observer,* the postulate is not obvious.

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[11] *Ibid.*, p. 25.

[12] *Relativity, Gravitation and World Structure* (Oxford: Clarendon Press, 1935), pp. 114-20.

V

In the fifth section the relativistic treatment of the cosmological problem is considered in a very clear manner. The whole subject, which is treated in a very concise form here, is dealt with fully, in detail, in R. C. Tolman's great work, *Relativity, Thermodynamics and Cosmology.* The author points out the reason for the appeal that relativistic treatment of the cosmological problem has for so many workers. This appeal derives from the correspondence established in relativity theory between the phenomenon of gravitation in space and the geometry of physical space. In the theory of relativity, bodies move according to purely geometrical principles through a space of continuously changing metrical properties; in the classical treatment, gravitational forces, acting upon bodies in a space of presupposed metrical properties, moved the bodies. In passing from the classical to the relativistic treatment, one passes from the duality of gravitational field and geometrical properties of space to a unitary field, in terms of which it is possible to ask the cosmological question in this form: Since a closed finite space is characterized by a special expression for the line element which defines the metrics of space, do we in fact get a line element which indicates that our universe is finite? Thus a neat form is assured to the theoretical question. From the side of observation, the position still is that a closed and finite universe is not excluded by the facts, nor is it supported by them. Both the classical and the relativistic treatments lead to the same results, namely, that a static world filled with gravitating matter is not possible and that an isotropic expansion is compatible with the cosmological postulate. The author mentions as a disturbing feature the appearance of singularities which make it impossible to apply the solution in terms of isotropic expansion to the whole life history of the universe. With the appearance of singularities—such as, for example, initial moments for the expansion—we enter the domain of weakness for cosmology insofar as we leave the domain accessible to the methods of that science. Removal of the singularities may be attempted, by way of introduction of *ad hoc* elements, which are naturally disliked by cosmologists. It is noteworthy that Marxists have shown a preference for Tolman's model of an oscillating universe, which would be compatible with the Marxist assumption of everlasting matter in movement, while others, including the Abbé Lemaître, have developed a theory of expansion from an initial instant which would be compatible with the notion of creation. It is at this point, perhaps, that the main weakness of *Cosmology* reveals itself. The restriction of the treatment to that part of speculation about the universe as a whole which may be formulated in terms of structure only is hardly justified at present when, as the author remarks, "all considerations so far have been of a preliminary character."[13] In fact, the problem of the physical universe has been approached during the last century from many different starting points. Geology, using the resources of study in radioactivity, has provided some of the relevant facts. Chemistry, atomic physics, spectroscopy, thermodynamics, and so on, have each in their own terms provided other relevant facts. The cosmological problem, understood as that of a general understanding of the universe as a whole in its movement and its nature, is really the supreme problem of the experimental-theoretical approach to reality. Some implicit reference to these other approaches is made in the final section of *Cosmology;* but the value of the author's remark that a "final solution of the cosmological problem depends on further extension of our empirical knowledge of the structure of the universe"[14] would have been increased greatly had its field of reference extended beyond the geometrical sufficiently to do justice to the findings of other branches of natural science. In particular, the question of an initial singularity, which disturbs a geometrician, would be seen as the highly probable point of convergence of the findings in many different fields of study, so that the well-foundedness of calling this singularity the instant of creation would be quite apparent. The consequent compatibility between the certainties of both religion and philosophy and the exactly determined probabilities of our highly developed modern science would show, so to speak, that both philosophers and scientists live in the same world.[15]

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[13] *Cosmology,* p. 56.

[14] *Ibid.,* p. 57.

[15] The lines along which a philosophical consideration of the import of cosmological conclusions should advance are primarily epistemological, since the main question will be what quality, of certitude or of opinion, characterizes cosmological conclusions. The author of *Cosmology* makes it very clear, throughout his work, that the present conclusions of cosmological speculation are tentative, are advanced without any emphasis of

VI

In spite of the limitations which its author would appear deliberately to have imposed upon his subject matter, so that no consideration is given to the cosmogonical approach to the theory of the universe, with the consequent omission of reference to the work of Jeans, Lemaître, Gamow, Alpher, Herman, Hoyle, and others of note; in spite also of the continuous pleading for the superiority of the relativistic approach to the cosmological problem without any hint appearing of the arbitrary character of the geometries which are typical of this approach,[16] *Cosmology* is a valuable work which should

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definitiveness. As long as the cosmological theories are founded upon any assumption about the distribution of matter in the universe, such theories will not reach true and certain conclusions. If the assumption concerning the distribution of matter were in fact such that matter in the universe was distributed according to the manner in which it is assumed to be distributed, then the conclusions derived from the theory would have a conditional character until such time as the assumption could be removed and an assertion which was true introduced in its place. Whether the progress of astronomical observation will ever reach the point of enabling us to say that the distribution of matter in the universe is such and such, is a question which may be debated. Most working cosmologists would appear to be content to accept the possibility of a knowledge which will grow in the direction of completeness without ever attaining completeness. Everything points to the fact that the intellectual position of the cosmologist is an intermediary one, interested wholly in the perfecting of judgments of opinion, which lies between the region of the spontaneous certitudes of the ordinary man (Sean O'Casey's Captain Boyle asks, "What is the stars?," thus admitting that he is sure that there is something above his head not within reach of his hands), and the reflexive certitudes of the philosopher, who will assert the existence of extra-mental bodies in the region above our heads as well as some judgments concerning the nature and the order of those bodies. The cosmologist, who does not have to justify his initial and direct judgment that there is a universe with things in it, the size and shape of which he wishes to determine, is nowhere along the line of his own work protected from the sceptical attack which would cut his initial certitude from under his feet. So we may envisage the cosmological enterprise as working from a basic ground of certitudes which have not been justified, and tending asymptotically towards the certitude which would derive, as regards a knowledge of the figure of the universe, from his possession of the *unique hypothesis, known as such,* provided only he accepted the reflexive justification which the epistemological part of metaphysics would give both to his initial certitudes and to all the others designed in terms of a mathematical discourse fitted upon the measurements derived from existing things.

[16] In its applications to cosmology, general relativity "first chooses a metric, partly on grounds of symmetry, partly from considerations of 'cosmic time'; this is equivalent to choosing a space and thus implying a set of trajectories that would be followed by free particles. The field equations are then employed to ascertain (with the ambiguity consequent upon the admission of the cosmical constant λ) the matter-in-motion implied to be

find a sphere of great usefulness in seminar work on the epistemological problems connected with scientific activity. One feels that the limitations of the positivistic approach will become very apparent to those who take the trouble to read *Cosmology* with sufficient attention. And this would be all to the good. One feels also that a fresh understanding of the problem of the manner in which the philosopher should approach scientific material would be gained from a serious study of *Cosmology*. For example, as regards the main problem of whether the universe is finite or infinite, it might become clear that in the nature of the problem a solution is not possible within the region of geometrical theories subject to experimental verification. Tolman's remark[17] that because, as a consequence of Hubble's work the density of matter in the form of extragalactic dust might be thousands of times as great as the averaged-out density of the nebulae, without giving rise to effects that would have so far been found, we do not know (through any process of observation) whether the actual universe is spatially closed or open and can choose only between universes which are finite and infinite in spatial extent only on the basis of dubious metaphysical predilections, is a remark which may well be turned to a sense very favorable to philosophy. In fact, when cosmologists do approach the question of the finitude or the infinitude of the universe, what we find, whether our cosmologist be a Milne or a Lemaître or an Einstein, is that the choice is naturally reached by processes of thought which lie outside of the formal mode of the cosmological enquiry. Perhaps the question whether the universe is finite or infinite is primarily a philosophical question. Certainly if cosmologists possessed the initial certitude that their problem concerning determinate size and structure arose only in the case of a universe known to be finite, a considerable and advantageous modification of cosmological study would arise. While the present writer is convinced that the general question of finitude is a purely philosophical matter and that certitude can be attained in regard to it, it would not seem to be altogether useless for scientists to ask themselves what observational test would certify a solution in the sense of finitude. One feels rather that even if our instruments brought us up against the *flamentia moenia mundi*, we should still, on posi-

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present. Thus the space is first chosen and then filled with matter according to the 'laws of nature' which are assumed as part of the theory. Lastly the whole structure is convertible into the observations that would actually reveal it, by means of the light paths defined $ds = 0$, $\delta \int ds = 0$." (See *Milne, op. cit.*, pp. 345-46.)

[17] R. C. Tolman, *Relativity, Thermodynamics and Cosmology*, (Oxford: Clarendon Press, 1934), p. 232.

tivistic theory, be in doubt whether the world were finite or infinite precisely because that theory of science does not render intelligible the connexion between geometry and the world to which it is applied and because that theory does not account for the insertion of the scientific judgment. The best of the immediate future probably lies in the observational approach to cosmology.

One is happy to be able to conclude with a reference to the address of the Holy Father to the Pontifical Academy of Science, made on November 22, 1951, in which the Holy Father treats of the *assistance* which the more recent developments of modern physics bring to the philosophical arguments for the existence of God, and of the strengthening of our belief in a creation in time which derives from modern cosmogonical investigation. The Holy Father, considering the most recent work in the field—much of which, as was remarked above, is not considered in *Cosmology*—finds it necessary to indicate that the converging intentions of the main conclusions of modern physical science so point the lesson of the mutability of all physical things and of the beginning in time of our universe in process of directed transformation that modern scientists are, as it were, impelled by the force of facts to declare the existence of God and the creation of the world. Science now provides a powerful suasion towards the truths of religion. The regulating note is voiced by the Holy Father in the following words:

> It is quite true that the facts established up to the present time are not an absolute proof of creation in time, as are the proofs drawn from metaphysics and Revelation in what concerns simple creation, or those founded on Revelation if there be question of creation in time. The pertinent facts of the natural sciences, to which We have referred, are awaiting still further research and confirmation, and the theories founded on them are in need of further development and proof, before they can provide a sure foundation of arguments which, of themselves, are outside the proper sphere of the natural sciences.

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Supplementary note.

Typical of Duhem's unphilosophical understanding of philosophers is his final appreciation, here translated, of the Aristotelian *Physics* (See *Le système du monde: histoire des doctrines cosmologiques de Platon a Copernic* [5 vols.; Paris: A. Hermann et fils, 1913-17], I, 240). "Of the *Physics* of Aristotle, not one stone will remain on another. . . . In this *Physics* we have distinguished two essential theses. Of these, the first orders the movement of the eternal bodies, the second regulates the movement of the bodies subject to birth and death. The first rests on the fundamental dogma: all the movements of the celestial bodies are circular

Supplementary Note—continued

uniform movements which have for center the center of the world. The second is dominated by the notion of natural place, and states the laws of natural movement according to which heavy or light bodies tend towards their proper places." The thesis of the eternal circular motion is not founded on a dogma, but on a misinterpretation of our ordinary experience of heavenly motion, and as such may be detached from the *Physics* without damage to its essential, philosophical content. The notion of natural place is susceptible of reinterpretation, in the light of the results of modern science, which makes of it a notion still philosophically valuable.

SCIENCE vs. PHILOSOPHY

F. G. Connolly

The general theme for the next annual meeting of the American Catholic Philosophical Association will be philosophy and the experimental sciences. The choice of theme is a happy one, for the problem has aroused increasingly intense interest among Scholastic philosophers ever since the publication of Maritain's *Les Degrés du Savoir* and has divided them into two major schools of thought. It seems to the writer of this article that the two opposing views are not radically incompatible and that they can be reconciled through a comparatively minor correction of the doctrine of the three orders of intellectual abstraction—a correction which at the same time eliminates a very unsatisfactory element in Maritain's philosophy of the sciences. Our purpose is to present the basic idea of such a reconciliation for constructive criticism before the Association meets in Cleveland next April.

Maritain based his solution of the science-philosophy problem upon an inner differentiation of the first order of intellectual abstraction. On this level of physical abstraction the mind considers sensible or mobile being apart from particular sensible things; it only abstracts from individual sensible matter. Once this initial abstraction has been achieved, the intellect is free to move towards two degrees of terminal abstraction. For all our knowledge on this level of thought manifests a bipolar character, since it deals with an intelligible object *(ens)* enclosed within an ensemble of sensible regularities *(sensibile seu mobile)*. If the emphasis is placed on *ens,* we have an ontological form of knowledge—the philosophy of nature. If the emphasis is placed on *sensibile seu mobile,* we have a nonontological, empiriological form of knowledge—the empirio-schematic sciences of nature. These two levels, Maritain claims, are specifically distinct. For the specifica-

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tion of the sciences is ultimately derived from their typical way of conceptualizing the object and of constructing their notions and definitions; and the *modus definiendi* of the empirio-schematic sciences is radically different from that of the philosophy of nature.[1]

Charles de Koninck and his followers attack Maritain's solution at its very root, the inner differentiation of the first order of intellectual abstraction. They insist upon the strict unity of the phrase *ens mobile;* by it something absolutely simple and *per se unum* is signified. The apparent duality is purely verbal. There is, then, no room for two specifically distinct levels of knowledge within the field of physical thought. Moreover, the profound difference between the empirical sciences of nature and the philosophy of nature can be otherwise explained. The student of nature, beginning with the most general notions of motion, of the constituents of mobile being, and so on, delves deeper and deeper into the concrete details of nature. As he does so, there is a transition from one kind of knowledge of sensible nature to another kind, but it is not a passage from one science to another specifically different science; it is a descent from the level of scientific knowledge to that of opinion. In other words, empirical science is nothing else than a continuation of the philosophy of nature on a dialectical level.[2]

These two judgments—Maritain's affirmation of an essential distinction between the empirio-schematic sciences and the philosophy of nature, and de Koninck's rejection of any inner differentiation of the order of physical abstraction—are not radically incompatible. The key to their reconciliation is to be found, I would suggest, in Mortimer Adler's work on the problem of species. When Maritain's *Les Degrés du Savoir* first appeared (1937), Adler hailed it as containing ''the outline, at least, of a synthesis of science, philosophy and theology which would do for the modern world what St. Thomas had done for philosophy and theology in the middle ages.''[3] Four years later he came to the conclusion that Maritain's ideas, while fundamentally correct, called for rather far-reaching modification. His change of mind came about as the result of his investigation in the problem of species.[4]

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[1] See Yves Simon, "Maritain's Philosophy of the Sciences," *Thomist,* V (January, 1943), 85-102, for a brief and lucid exposition of Maritain's views.

[2] See Charles de Koninck, "Les sciences expérimentales sunt-elles distinctes de la philosophie de la nature?," *Culture, Sciences Religieuses et Profanes au Canada,* December, 1941, for a brief and lucid expression of his own opinion.

[3] *What Man Has Made of Man* (New York: Longmans, Green & Co., 1937), p. 242.

To Adler there seemed to be an unresolved opposition between two theories, one of which supposed a small and definitely known number of species (more than three and less than ten) of composite substances and the other of which supposed a large and not definitely known number. After arguing back and forth between the two opinions, Adler came to the conclusion that the first theory was *better* than the second, but that it had not answered every objection satisfactorily and that on several crucial points its answers relied on assumptions which it had not demonstrated. The publication of ''The Problem of Species'' aroused considerable discussion, as a result of which Adler changed his conclusion. ''The first theory [as exposed by himself] contained an accidental error, the rectification of which permits it to be proved, whereas the second theory is essentially erroneous and can, therefore, be completely disproved.''[5]

In the process of arriving at this conclusion Adler had to take issue with one of Maritain's pivotal principles in his solution of the science-philosophy problem, the principle that the constant and peculiar sensible accidents which, in aggregate, appear associated with this or that kind of thing, could be used to signify species in the philosophical, as opposed to the merely systematic, sense of the word. Adler showed that these aggregates of sensible regularities could not be so employed. Neither the natural habits of a substance (that is, the constant and peculiar modifications of its powers which arise from its normal operations) nor the modes of operation which depend merely upon peculiarities of organic structures nor such things as colors, odors, figure or shape, duration of life-span, locale of habitat, and so on—none of these are properties, nor can they be used as signs of specification to take the place of unknown properties. Powers, and powers alone, are properties.[6]

But Adler had to, and did, offer an explanation for the constancy and peculiarity of *some* contingent accidents. The substance of his explanation is contained in the following excerpt.

> Contingent accidents are of two sorts, which can be distinguished as separable and inseparable. But those which are inseparable are, nevertheless, *contingent*, which means that

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[4] "The Problem of Species," *Thomist*, I (April, July, and October, 1939), 80-122, 237-70, 381-443; II (January and April, 1940), 88-155, 237-300. "Solution of the Problem of Species," *ibid.*, III (April, 1941), 279-379.

[5] "Solution of the Problem of Species," *ibid.*, 280.

[6] "The Problem of Species," *ibid.*, II (January, 1940), 130-33.

> they are inseparable from a particular unit of matter, and not that they are consequences of the substantial form, for then they would be *necessary*. . . . In short, both constant and variable (inseparable and separable) accidents are contingent because they are due to the matter, and not to the form; yet both are not related to matter in the same way: the variable, or separable, accidents are, according to a post-predicamental analysis, terms of motion, i.e., of the three sorts of accidental change; whereas the constant, or inseparable, accidents are terms of generation, i.e., they are involved in the determinateness of the signate matter and hence are constant and peculiar accidents of the substance thus generated and individuated. The separable accidents are those which an individual can acquire or lose as a result of his own operations, his second acts; the inseparable accidents are those which an individual possesses from generation to corruption; they are involved in his first act, since he is constituted by a substantial form individuated by signate matter. As the powers flow from the substantial form, so the inseparable accidents are in the signate matter.[7]

Now, Maritain held the second theory of species and developed his notion of the empirio-schematic sciences of nature, as distinct from the philosophy of nature within the order of physical thought, upon the lines demanded by this theory, making use of the principle that aggregates of contingent accidents can be employed to signify species and substantial forms. The empirio-schematic sciences, he affirmed, know specific distinctions, even though they are known only indistinctly and inadequately by, and in, accidental signs. Their classifications are in terms of observable accidents which can be empirically correlated as having a certain invariancy and which are therefore taken as properties in the sense that they render nature intelligible to us. Accordingly, Maritain defined the empirio-schematic sciences of nature as

> sciences which deal with the essences as concealed, sciences which are unable to reveal the intelligible necessities immanent in their object. They are inductive sciences . . . of themselves alone sciences of empirical affirmation. . . . They make known to us the ''causes'' or reasons of being, not in themselves but in the signs which take their place. For example: we know that heat expands metals, that ruminants have cloven hoofs, and in this way we blindly grasp a necessity of which we do not see the reason—a well-established experimental constant becoming the sign of some necessity, and this in turn the sign of some *essential* connection. The inductively

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[7] *Ibid.*, pp. 133 f. (Permission to quote from this article has kindly been granted by the editors of the *Thomist.*)

> established law is thus much more than simply a general fact; it circumscribes the essence although without revealing it; it is the practical equivalent of the essence or of the cause, which itself remains hidden to us.[8]

Consequently, Maritain placed this perinoetical knowledge of nature in the category of a properly intellectual knowledge, while adding the qualification that "here the ontology is oblique and indirect. It is never sought for itself; it is there only as a basis for empirical representations and definitions."[9]

The rejection of Maritain's principle by which he lifted the perinoetical knowledge of nature into the sphere of intellectual knowledge strips his empirio-schematic sciences of even the indirect and oblique ontology which he ascribes to them; it leaves them merely sciences—it is by courtesy alone that we give them the name—of sensible phenomena and their connexions. They belong substantially to the order of sensitive knowledge. As Adler noted in his study of the problem of species,

> . . . the traditional discussion of species did not take explicit account of something intermediate between the substantial form (or specific nature) and the individual character. An infima species was traditionally regarded as subsuming individuals immediately and the only problem was about the way individuals of the same species differed. But we have found it necessary to interpose a *tertium quid*, a sub-specific character, between individual and infima species. This means that individuals of the same species differ not only accidentally but racially—using the word "race" to stand for all sub-specific ranks.[10]

And these "races," these subspecific types, are represented to mind only in terms of ensembles of sensible regularities, of mental constructs which have been recognized by modern psychology under the head of "generic" or "abstract" images. The conclusion seems to follow that the perinoetical knowledge of nature and the empirio-schematic sciences must be relegated to the plane of sensitive knowledge. Yet it is known by the intellect. How is it so known? St. Thomas holds that the intellect knows particular things by a conversion to the phantasms, by a certain reflexion on the images.[11] Consistent with his teaching, I would suggest that the intellect knows nature perinoetically in the images of a sensitive cognitive power.

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[8] *Distinguer pour unir ou les degrés du savoir* (4th ed.; Paris: Brouwer, 1946), p. 67.

[9] *Ibid.*, p. 289.

[10] "The Problem of Species," *Thomist*, II (April, 1940), pp. 266 f.

[11] See Rudolf Allers, "The Intellectual Cognition of Particulars," *Thomist*, II (January, 1941), 95-163, for an excellent discussion of this problem.

To what cognitive faculty should this knowledge be attributed within the framework of Thomistic psychology?[12] To one of the internal senses, the cogitative, a faculty which Peghaire has aptly named "the forgotten sense."[13] The estimative, as it is called in the case of brute animals, is a sense faculty which judges, estimates that an object is useful, harmful, or harmless. Now, man, too, is an animal and he also possesses an estimative power. But man is a *rational* animal and so, proximately by reason of its conjunction with reason and remotely because it is a faculty of a rational soul, his estimative faculty exhibits a modality of action which, while it does not transform it into a spiritual faculty, does give it a definite superiority over the estimative faculty of the brute animal. So deeply is it affected by this influence that it has been traditionally given three special names: the cogitative, particular reason, and the passive intellect.

As these names suggest, St. Thomas patterns the work of the cogitative upon the work of reason itself. To it he attributes acts of apprehension, judgment, and reasoning. Apprehension and judgment, he holds, are common to the estimative and the cogitative, although these acts are more perfect in the case of the latter. But a "reasoning" process, a *collatio* of particular data, is proper to the cogitative. "Other animals," he says, "perceive intentions of this kind [that is, particular intentions] only by a certain natural instinct, but man through a certain collation."[14] And again: "In the other animals there is no collation; they reach these objects through an impulse of nature; that is why their operation is not called reason but estimation."[15] Experience is the result of this collation, of this gathering together of the concrete, particular data of sensible nature.

Now, consider St. Thomas's doctrine on the cogitative as lucidly and, I think, faithfully expounded by Julien Peghaire in the article cited above. Study, on the other hand, the character of the empirio-schematic sciences of nature as depicted by Maritain and corrected by Adler; consider them in their pure form, remembering that it is in terms of these sciences in their nonmathematicized form that Maritain and Adler distinguish them from the philosophy of nature within the first order of *intellectual* abstraction. Such a comparison seems to lead to only one conclusion; namely, that the empirio-schematic sciences are the fruit of the collative activity of the cogitative and that the intellect only attains this knowledge indirectly in the images of the cogitative.

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[12] The Thomistic doctrine on sensitive knowledge, as opposed to intellectual knowledge, is, to say the least, inadequate. (Cf. the statement of a former editor of THE MODERN SCHOOLMAN, XXIII [March, 1946], 111-12.) The doctrine, I would suggest, needs to be corrected on two vital points: the scope of sensitive knowledge as a whole and, consequently, the ability of the brute animal to consciously adapt its behavior to circumstances. The knowledge here ascribed to the cogitative would then be ascribed to the imagination. But it would be better to restrict this article to the one issue.

[13] Julien Peghaire, "A Forgotten Sense, the Cogitative, According to St. Thomas Aquinas," THE MODERN SCHOOLMAN, XX (March and May, 1943), 123-40 and 210-29.

[14] *Summa Theologiae*, I. 78. 4.

[15] *In III Lib. Sententiarum*, d. 23. 2. 2.

This brings us to a crucial point in the discussion of the science-philosophy problem. If immateriality is the root of knowledge, what is the immateriality, the remotion from matter, which is involved in the activity of the cogitative? In it, I would suggest, there is a remotion from individual sensible matter. By ''sensible matter'' I mean corporeal matter as subject to sensible qualities. But sensible matter is twofold, individual and common: individual—corporeal matter as subject to these sensible qualities by which one individual of a subspecific type is distinguished from all other individuals of that type; and common—corporeal matter as subject to an aggregate of sensible accidents which are common to all individuals of a type. Nor is this abstraction from individual sensible matter an arbitrary process on the part of the cogitative. For, as we have seen above, the common sensible accidents and the individual sensible accidents are not related to matter in the same way: the former are terms of generation (that is, they are involved in the determinateness of the signate matter), whereas the latter are terms of motion (that is, of the three kinds of accidental change).

Obviously enough, this conclusion obliges us to focus our attention on the first order of intellectual abstraction, which is traditionally defined in terms of a remotion from individual sensible matter. Let us approach this aspect of the problem by way of a very unsatisfactory element in Maritain's philosophy of the sciences—unsatisfactory to me, at least; but perhaps I am afflicted by what Maritain considers to have been the exaggerated ''optimism of the ancients.''[16] This element stands out most clearly in his *Les Degrés du Savoir* when he seeks to concretize his conclusions in a diagram of the sciences.[17]

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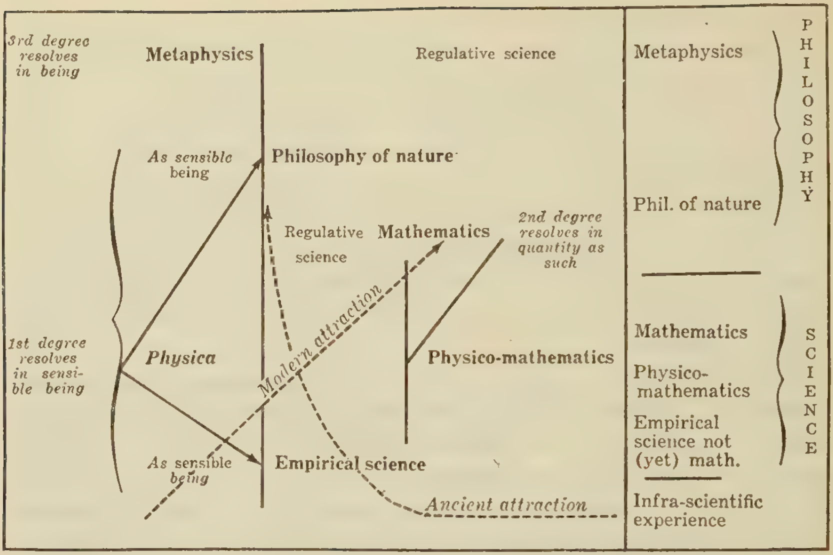
[16] *Op. cit.*, p. 91

[17] *Ibid.*, p. 79.



In this diagram we find, first of all, that Maritain moves mathematics to one side of the vertical ascent from physics to metaphysics and, in the text, gives a solid reason for so doing; that is, that physics and metaphysics are concerned with real being, whereas mathematics deals indifferently with real and logical being. But Maritain goes one step further by altering the position of mathematics in the hierarchy of the sciences; he places it *between* the lower and higher levels of the *first* order of abstraction. In a footnote (to relegate the reason for a major alteration to a footnote is itself surprising) he explains why he has done so:

> It is by reason of its participation in the light of the third degree of abstraction that in our synoptic table we have placed the philosophy of nature on a higher plane than mathematics. Yet the first degree of abstraction, from which it originates, remains inferior in its immateriality to the second—a fact which is also illustrated in the diagram.[18]

How this term "participation" is to be understood is rather difficult to determine. For Maritain absolutely rejects any elevation of the philosophy of nature into a special metaphysics; on the contrary, he affirms that it is not even properly subalternated to metaphysics. No doubt the powerful attraction which mathematics has exerted over the empirio-schematic sciences of nature in modern times would urge us to bring them closely together, but this method of doing so hardly seems to be justifiable in the light of his own principles.

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[18] *Ibid.*, n. 1, p. 80.

The solution of the difficulty lies in the point made above; namely, that the knowledge contained in the empirio-schematic sciences of nature involves a remotion from individual sensible matter which is the work, not of the intellect, but of a sensitive cognitive power, the cogitative. This judgment throws a new light upon the order of physical abstraction, as we shall see in a moment; and the revised notion of physical abstraction calls for a realignment of the three orders of intellectual abstraction—the first is that of mathematical abstraction; the second, of physical; and the third, of metaphysical. Accordingly, the explanation of the powerful attraction of the empirio-schematic sciences towards mathematics in modern times is that these sciences reach up to mathematics for their completion because it is the nearest *propter quid* science, being on the borderland, as it were, of sensitive and intellectual knowledge.

A consideration of the degree of immateriality proper to mathematics will make this point clear enough, although a consideration of the higher degree of immateriality proper to physics will be necessary for a full understanding. The human intellect, since it can abstract from all sensible matter, stands, as it were, on a suprasensible vantage point from which it can gaze down upon sensible nature. Doing so, it perceives that sensible accidents occur in substance according to a certain order—first, quantity; then qualities; finally, passions and action.[19] Quantity, it perceives, can therefore be understood prior to any consideration of the sensible qualities; it can be understood solely in relation to the substance upon which it depends. Thus the intellect grasps quantity as a form determining the substance and rendering it capable of affecting the senses; for the sensible qualities inhere in substance through the intermediary of quantity, and it is these sensible qualities which constitute the proper objects of the external senses. Once it has grasped abstract quantity—quantity considered not only apart from the sensible qualities which inhere in it, but also apart from this or that substance—the intellect is able to distinguish quantitative parts which can be numbered or measured and is able to use these as principles of demonstration. And so we have the science of mathematics.

What then is the remotion from sensible matter involved in mathematical abstraction? While prescinding from actual sensible matter—that is, from matter as made known to us through the sensible qualities—it deals with potentially sensible matter. By ‘‘potentially sensible matter'' I mean substance as determined by quantity, which is a sensible accident even though it becomes actually sensible only by reason of the proper sensibles. But potentially sensible matter is twofold, individual and common: individual—this substance as determined by this quantity; and common—substance as determined by quantity. Since accidents, by their very nature, are dependent upon substance, it is impossible to abstract an accidental form from the substance in which it inheres; but it can be *considered* apart from this or that substance.[20] Mathematical abstraction can therefore be defined in terms of a remotion from individual potentially sensible matter.

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[19] St. Thomas Aquinas, *In II Lib. Physicorum*, lect. 3.

Thus the empirio-schematic sciences reach up to mathematics in particular for their substitute *propter quid* because it is the nearest *propter quid* science. The objects of sensitive knowledge, even in the case of the cogitative, depend on actually sensible matter both for their being and for their being known. Accordingly, they can neither exist nor be known except in terms of actually sensible matter. So the empirio-schematic sciences depend essentially and immediately on the external senses in which all their judgments must terminate. Mathematical entities, on the contrary, depend only remotely upon the external senses and upon actually sensible matter. They are derived originally from sense experience. We form the notion of a circle, for example, only after we have experienced concrete circular objects. But this experience has only a prescientific function, for the mathematical entities are lifted up out of this experiential context and given an abstract character of their own. The notions of line, triangle, seven, and so on, contain no actually sensible matter, nor are they defined in terms of the same. However, if they are to exist in the objective world they must be concretized in sensible matter.[21] It is evident, then, that mathematical judgments do not have to terminate in the external senses, for they depend only remotely upon the latter. But mathematics has an immediate relation to one of the internal senses; it is in the imagination that all its judgments must terminate, either directly or at least reductively.[22] The reason why it must retain some contact with the imagination is that, though freed from the determinations of the sensible qualities which inhere in quantity, mathematics is not freed from all materiality and hence must remain connected with a sensitive cognitive power. Though prior to the other sensible determinations of the substance, quantity is nevertheless known to us only through these determinations; and, hence, even after it has been detached from them, it retains an intrinsic relationship to them, for whatever is quantified is necessarily material and sensible.

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[20] St. Thomas, *Summa Theologiae*, I. 85. 1 ad 2.

[21] There are, of course, mathematical entities which cannot be so realized; for instance, the square root of minus one. This is possible because the capacity for such realization does not enter into the intrinsic formality of mathematical entities. Yet even these entities are in one way or another only elaborations of something that does exist in sensible matter (that is, quantity) and fall at least indirectly and analogically within the field of the imaginable.

The empirio-metrical sciences of nature (typical examples of which were, among the ancients, geometrical optics and astronomy) are the offspring of a marriage between mathematics and the empirio-schematic sciences of nature. They are hybrid sciences in which the empirio-schematic sciences become subalternated to mathematics. They are *scientiae mediae,* intermediary sciences in which the material element is taken from the empirio-schematic sciences, the formal element from the mathematical disciplines. Yet, though formally mathematical and only materially physical, these empirio-metrical sciences are more physical than mathematical because they have their term in sensible nature.[23] Are the *modern* empirio-metrical sciences of the same nature as the intermediary sciences of the ancients? Maritain thinks they are. Vincent Edward Smith denies it explicitly,[24] as does Gavin Ardley implicitly.[25] But it would distract attention from the main theme of this article to discuss the question here.[26]

We come now to the very heart of the problem. Physical abstraction, as has been suggested already, involves a higher degree of immateriality, a greater remotion from sensible matter, than does mathematical abstraction. For here, in physical abstraction, the intellect penetrates beyond the screen of the sensible qualities, beyond quantity, to the inner constitution of sensible substance. It discovers that every corporeal substance is intrinsically constituted of two principles—one passive, called primary matter; the other active,

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[22] Maritain, *op. cit.*, p. 282.

[23] St. Thomas, *In Boethii De Trinitate,* 5. 3 ad 6.

[24] *Philosophical Physics* (New York: Harper & Bros., 1950). The author is speaking primarily of empiriological physics; but, as he notes (p. 145), it is the prototype of the other empirio-metrical sciences of modern times. See especially p. 178.

[25] *Aquinas and Kant. The Foundations of the Modern Sciences* (London: Longmans, Green & Co., 1950).

[26] Not only this. It would open up a whole battery of questions which could not be treated even inadequately in this article.

called substantial form. And it knows the different substantial forms as manifested by their respective properties. Such a knowledge of sensible reality implies a remotion from individual potentially sensible matter. By ''potentially sensible matter'' I here mean primary matter. It is distinguished from the potentially sensible matter of mathematical abstraction inasmuch as substance determined by quantity is in *proximate* potency to become sensible, whereas primary matter is only in *remote* potency to become sensible. For the substantial form is considered apart from this or that primary matter; and it is only this primary matter having a relationship to this quantity which can become sensible by reason of the sensible determinations inhering in it.

The present conflict over the science-philosophy problem has its origin, I would suggest, in the traditional account of physical abstraction in which two abstractions, one of the cogitative, the other of the intellect, are confused. The occasion for the confusion was the unresolved opposition between two theories of species and the predominant influence of the false theory. More precisely, it had its origin in the principle that aggregates of sensible regularities can be taken to signify species and therefore substantial forms. The fewer the substantial forms (and the predominant opinion was that there was a vast multitude of them) that can be known to us through their properties strictly so called and, correspondingly, the more the specific differences became known to us only through quasiproperties, aggregates of sensible regularities, the more necessary it seemed to keep physical abstraction in contact with sensible matter, to define it in terms of actually sensible matter. That is true above all in the case of those who, like Maritain, claim that here on earth man is the sole being whose specific difference belongs to the purely intelligible and not to the sensible world.[27] As a matter of fact, Maritain shows a marked preference for *ens sensibile* in order to designate the object of the study of nature despite the preference for *ens mobile* in Thomistic tradition.

A diagram which can be compared with Maritain's diagram of the hierarchy of the sciences (see above) will help to concretize the views which have been proposed here.

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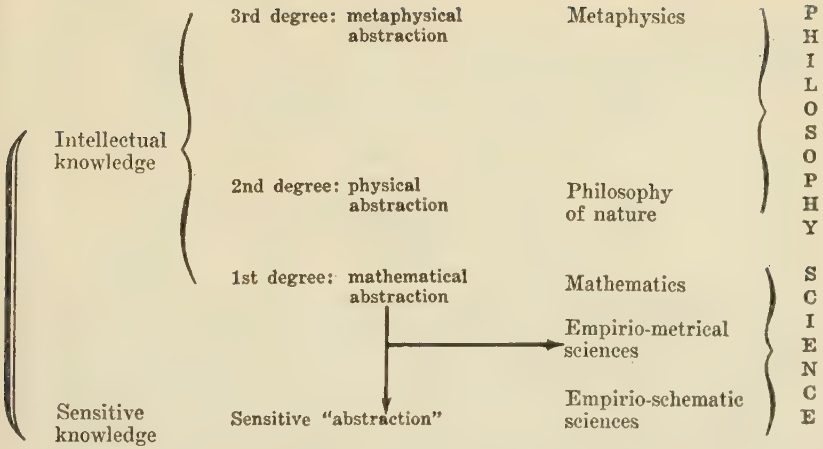
[27] Maritain, *op. cit.*, p. 347. In a footnote Maritain quotes with approval Garrigou-Lagrange's statement to this effect.


3rd degree: metaphysical abstraction
Metaphysics
PHILOSOPHY
Intellectual knowledge
2nd degree: physical abstraction
Philosophy of nature
1st degree: mathematical abstraction
Mathematics
SCIENCE
Empirio-metrical sciences
Empirio-schematic sciences
Sensitive knowledge
Sensitive "abstraction"

It seems possible, therefore, to reconcile the Maritain and de Koninck schools of thought on the basis of the foregoing considerations. Maritain's empirio-schematic sciences in their pure form are essentially distinct from the philosophy of nature because they are only sciences of sensible phenomena and their connections; they belong to the order of sensitive knowledge, being the product of the collative activity of the cogitative, whereas the philosophy of nature has its origin in an intellectual abstraction. The Laval school is right in its rejection of an inner differentiation of the order of physical abstraction. Yet Maritain's insistence on the essential distinction between the empirio-schematic sciences of nature and the philosophy of nature has served to bring to light the fact that the traditional account of physical abstraction confuses sensitive and intellectual knowledge; and it has focused attention on the collative activity of that forgotten sense, the cogitative. The clarification of this confusion in turn allows us to readjust the three orders of intellectual abstraction, and this in its turn allows us to understand why the mathematical disciplines have exerted such a powerful attraction over the empirio-schematic sciences of nature in modern times.

Bertrand Russell advises philosophers to advance their hypotheses boldly. Rolbiecki[28] adds that they should not fear criticism, but rather welcome the tests and clarifications of critics. It would be rather naïve not to foresee hostile criticism of the ideas expressed in this article. If even a small part of it is of a constructive nature it will have been well worth the effort.

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[28] John J. Rolbiecki, *The Prospects of Philosophy* (Benziger Bros., 1939), p. 3.

THE ABSOLUTE OF CREATION IN THE PHILOSOPHY OF AUROBINDO

Paul Colaço, S.J.

On the principle of a sachchidananda absolute, Aurobindo has, as we have seen in the preceding article, tried to explain the fact of the one and the many in the world. The one and the many aspects in the world, in his opinion, are explained solely on the basis that the sachchidananda absolute is not in its essentiality a blank or a vacuity, but "an original self-concentration in which all is contained but in another manner than in this temporal and spatial manifestation."[1] It is one that is potentially[2] many and therefore could actually realize the many in time which it potentially contained in eternity.

Even if such an absolute should explain the *fact* of the one and the many, the *problem* of the one and the many is not thereby solved. For not until we learn how that divine potentiality has realized itself into this world-actuality have we any solution of the problem of the one and the many. Aurobindo sees this point very clearly and, therefore, besides the sachchidananda aspect of the absolute, suggests another essential aspect, which he terms "supermind." It is the supermind that is the real creator or God inasmuch as it is by supermind gnosis that the energy or force of the absolute is turned into an effective play of self-manifestation.

THE NEED OF A SUPERMIND

The question of how the high concentration of sachchidananda takes concrete form and substance in the world can only arise on the supposition that the world of our experience is a real one. In

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This is the fourth article in a series of studies on the philosophy of Sri Aurobindo Ghose. The first article appeared in Volume XXVIII, pp. 291-300; the second and third, in volume XXIX, pp. 29-41 and 99-118.

[1] Ghose, Aurobindo, *The Life Divine* (Calcutta: Arya Pub. House, 1939-40), I, 193.

[2] *Ibid.*, 183.

Sankara's theory of perfect immanentism, there is no place for an intrinsic principle of self-realization in Brahman. Hence he had to invoke a magic power in God, maya, which somehow superimposed a world of multiplicity on the divine consciousness. But that superimposition, as he himself tells us, is ''a mere figment of Nescience,''[3] ''mere illusion,''[4] ''a multiform creation in the One Self of a dreaming person.''[5]

This concept of an illusory world finds no favor with Aurobindo. Indeed, he has nothing but scorn for illusionism of any kind.[6] The following passage is typical:

> A theory of Māyā in the sense of illusion or the unreality of cosmic existence creates more difficulties than it solves; it does not really solve the problem of existence, but rather renders it forever insoluble. For, whether Māyā be an unreality or a non-real reality, the ultimate effects of the theory carry in them a devastating simplicity of nullification. Ourselves and the universe fade away into nothingness or else keep for a time only a truth which is little better than a fiction. . . . An uncompromising theory of illusion solves no problem of our existence; it only cuts the problem out for the individual by showing him a way of exit. . . . The theory of illusion cuts the knot of the world problem, it does not disentangle it; it is an escape, not a solution.[7]

With almost unforgiving bitterness he laments the harm that Sankara and Buddha have done to Indian thought and spirituality by interpreting the Upanishads in a negationist sense.[8] Aurobindo finds nothing in the scriptures to justify or suggest the unreality of the world. He is willing to admit that Sankara's silent, motionless, self-existent, self-luminous Brahman is the closest approximation to the transcendental One described in the Vedas.[9] But he denies that that aspect alone is the complete truth about Brahman. His contention is that nowhere in the Upanishads have the ancient Vedic sages affirmed that ''because the One is the reality, the Many are an illusion, and because the Absolute is Sat, the one existence, the relative is Asat and non-existent.''[10] On the contrary, he finds that, though the ancient Vedantists laid much stress on the ineffable transcendence of the absolute reality, they also insisted "on the unity and reality of all the manifestation of the Absolute,"[11] on "the Cosmic Divinity."[12]

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[3] Sankara Bhashya, II. 1. 27 (*Sacred Books of the East*, ed. Max Müller, XXXIV, 352).

[4] *Ibid.*, III. 2. 6 (XXXVIII, 138); II. 1. 4 (XXXIV, 352).

[5] *Ibid.*, II. 1. 27 (XXXIV, 350-51).

[6] *Life Divine*, II, Part I, chaps. v and vi.

[7] *Ibid.*, 261-64.

[8] *Ibid.*, I, 184-85.

[9] *Ibid.*, 34.

[10] *Ibid.*, 54.

Aurobindo finds Sankara's interpretation not only unwarranted by the scriptures but also disproved by common sense. He writes:

> It is difficult for the positive physical mind to admit the idea that ourselves, the world and life, the sole thing to which our consciousness bears positive witness, are inexistent, a cheat imposed on us by that consciousness . . . the fact that world-existence seems unreal to us when we pass into the spiritual silence or into some Nirvana, does not of itself prove that the cosmos was all the time an illusion.[13]

Again, "at the outset man lives in his physical mind which perceives the actual, the physical, the objective, and accepts it as fact, and this fact as self-evident truth is beyond question."[14]

If reason bears so clear a testimony to the reality of the world, experience leaves no room for any doubt about it. Almost impatiently he remarks, "The perception of the spiritualised mind that the universe is an unreal dream can have no more absolute a value to us than the perception of the materialised mind that God and the Beyond are an illusory idea."[15] And to the rationalistic doubt as to how the formless can invest itself with forms, his pertinent retort is that "the universe is there to reply."[16] In other words, *contra factum non valet argumentum.*

He is ready to concede that all created forms exist "with an existence that is not pure, rather always mixed, combined, aggregated, relative";[17] but his sturdy common sense recoils from anything like a "revolt of Spirit against Matter."[18] To him the spirit as well as matter, God as well as the world, are real; and to foment an artificial quarrel between the two is a sign of a narrow outlook on life.[19] Aurobindo's position, therefore, with regard to cosmic existence is clear: "If One is pre-eminently real, the others, the Many, are not unreal. The world is not a figment of the Mind";[20] rather, "both

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[11] *Ibid.*, II, Part II, 521.
[12] *Ibid.*
[13] *Ibid.*, Part I, 190-91.
[14] *Ibid.*, 181.
[15] *Ibid.*, I. 55.
[16] *Views and Reviews* (1st ed.; Madras: Madras Pub. House), p. 31.
[17] *Life Divine*, I, 101.
[18] *Ibid.*, 34.
[19] *Ibid.*, 39-44.
[20] *Isha Upanishad* (2d ed.; Calcutta: Arya Pub. House, 1924), p. 26.

[the One and the Many] are a truth and neither of them an illusion.''[21]

If the many are as real as the one and the one is the basic and preeminent reality, then some explanation must be given for the conditioning of the many. The two explanations that could be put forward are chance and mechanical force. But neither of them pleases Aurobindo—not chance, because there is in the world ''too much of an iron insistence on order, on a law basing the possibilities,''[22] and where there is fixed order and law, chance is ruled out; and not mechanical necessity because ''the emergence of consciousness out of the inconscient is a stumbling-block in the way of this theory.''[23] He scornfully remarks that a purely materialistic explanation of the origin of the world is a vulgar or rustic error which ''does not gain in validity by being promoted into the domain of philosophical reasoning.''[24]

Another possible explanation of the origin of the world is creation by the ''Fiat of the Creator.''[25] This possibility he dismisses because

> one difficulty remains; it is the arbitrary nature of the creation, the incomprehensibility of its purpose, the crude meaninglessness of its law of unnecessary ignorance, strife and suffering, its ending without denouement or issue. . . . To the suggestion that what we see worked out in the world are the thoughts of God, the retort can be made that God could well have had better thoughts and the best thought of all would have been to refrain from the creation of an unhappy and unintelligible universe. . . . All theistic explanations . . . stumble over this difficulty and can only evade it.[26]

Having excluded all these possibilities, Aurobindo is necessarily led to conclude that the many are explained by the fact that the one has really *become* the many in timeless, spaceless eternity, and that what we generally understand by the created world is only an outward form of the becoming of the spirit.

> As the poet, artist, or musician when he creates really does nothing but develop some potentiality in his unmanifested self into a form of manifestation . . . so is it with the world and the Eternal. All creation or becoming is nothing but this self-manifestation. Out of the seed there evolves that which is already in the seed, preexistent in being, predestined in its will to become, prearranged in the delight of becoming.[27]

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[21] *Essays on the Gita,* Second Series (1st ed.; Calcutta: Arya Pub. House 1937), p. 12.

[22] *Life Divine,* II, Part I, 9-10.

[23] *Ibid.,* 10-11.

[24] *Ibid.,* I, 26.

[25] *Ibid.,* II, Part I, 18.

[26] *Ibid.,* 13; cf. I, 141-42.

[27] *Ibid.,* I, 169.

The becoming of the spirit in form and shape is so real to Aurobindo that he lays great stress on it; it is the crux of his whole philosophy. He frequently compares the world to "a stream,"[28] "a train in which we are travelling,"[29] a vast "energy at work,"[30] and so on. Not only is the world as a whole in motion, but everything in the world is "like the rising and falling of waves on the surface of the ocean,"[31] "certain great rhythms"[32] of conscious force, "multiple currents of energy seen by us as actions and play of force."[33] He even goes so far as to affirm that "becoming, change, succession are a mode of our being."[34]

But one may ask whether that becoming is only in the order of visibility, as Vallabha understood creation. According to Aurobindo creation is not merely God by his inherent power *showing* himself in visible forms, but *becoming* those visible forms. Hence, before becoming visible in time and space and with form and substance, the one becomes the many in its own timeless, spaceless essentiality.

If, as Aurobindo holds, the totality of the objects is the becoming of the Lord in the extension of his own being,[35] then the problem how the one became the many is real and demands an answer. It is obvious that the principle of this becoming must be sought in the very nature of Brahman, who is the one and only fundamental reality. But what is this nature?

Hitherto Vedantists believed it was sachchidananda itself that caused the manifestation by its almighty *sakti* or power. Thus, for instance, Ramanuja writes: "Our text . . . teaches that the creation of the aggregate of sentient and non-sentient things results from the mere *wish* of a being free from all connection with non-sentient matter."[36] Vallabha's answer is similar: God, who by his essence is the material cause of the world, by his mere will (*iccha*) turns this essence into any form he condescends to choose.[37]

But Aurobindo disagrees with them. He finds it impossible to admit that sachchidananda could itself be the principle of creation or manifestation. Two reasons stand against such a supposition.

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[28] *Ibid.*, II, Part I, 339.

[29] *Ibid.*, 112.

[30] *Ibid.*

[31] *Ibid.*, I, 126.

[32] *Ibid.*, II, Part I, 118.

[33] *Isha Upanishad*, p. 67.

[34] *Life Divine*, I, 118.

[35] *Ibid.*, 220.

[36] Ramanuja Bhashya, I. 1 (*Sacred Books of the East*, XLVIII, 236).

[37] P. Johanns, S.J., *A Synopsis of 'To Christ through the Vedanta.'* Par. III, "Vallabha" ("Light of the East Series," No. 9; Calcutta), p. 5.

First, the supposition would imply a necessity of manifestation in the original self-contented and blissful sachchidananda. But ''infinite Existence, Consciousness and Bliss need not throw themselves out into an apparent being at all'';[38] sachchidananda by its very nature implies absolute freedom to manifest or not to manifest. Secondly, even if by some impossible necessity it did turn into a becoming, that becoming ''would not be a cosmic being [that is, an orderly cosmic harmony] but simply an infinity of figures without fixed order or relation.''[39]

But why should it be so? Why could sachchidananda by itself not organize an orderly cosmos? The reason which Aurobindo advances is this. The sachchidananda is an infinite self-concentration, a pure unity without any trace of differentiation and selection; differentiation and selection, on the other hand, imply knowledge and will. But these faculties cannot be predicated of sachchidananda, since that is a pure unity of consciousness and not a knowledge. Hence if sachchidananda ''is the sole reality, then the world is not and never existed, can never have been conceived; for indivisible consciousness (such as is possessed by Sachchidananda) is undividing consciousness and cannot originate division and differentiation.''[40]

And yet a real universe of relations exists. A power, therefore, of differentiation and selection and ordering must be found in the infinite itself and nowhere else. Could it be some kind of mind power in the absolute different in aspect from the unitive nature of sachchidananda?

That some kind of mind must be in the absolute to explain the process of creation seems obvious to Aurobindo. For mind, in his opinion, is that faculty to which nature itself has assigned ''a dividing operation'';[41] its office is ''always to translate infinity into the terms of the finite, to measure off, limit, depiece.''[42] And without such a dividing and measuring operation an orderly creation of finite beings is impossible. Hence by the sheer necessity of his logic Aurobindo is forced to conclude that, besides the aspect of sachchidananda which is a state of original concentrated unity of consciousness, there must be admitted in the absolute a mind by whose activity the unity of consciousness is released and ordered into a world manifestation of multiple beings.

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[38] *Life Divine,* I, 406.
[39] *Ibid.,* 407.
[40] *Ibid.,* 190-91.
[41] *Ibid.,* 191.
[42] *Ibid.,* 249.

But Aurobindo is quite certain that it could not be of the nature of human mind. Mind, as we know it, is essentially marked by ignorance and error. It is, he tells us, "the nodus of the great Ignorance,"[43] and therefore when applied to God, owing to its intrinsic limitation, it breaks up his unity; it creates a "violent opposition and vain attempt at mutual exclusion in the united family of the Ideas and Powers that are convergently busy with the universe."[44]

A creative mind on the other hand "must be an original consciousness which contains and views both [unity and diversity] at the same time and is intimately conscious of all the relations of the one with the other."[45] Such a thing is impossible for any mind of the same nature as ours. For, Aurobindo tells us, the human mind, however lofty it may be, is only "an instrument of analysis, but not of essential knowledge";[46] "it cannot arrive at a true totality,"[47] at a true comprehension of unity which is so essential for a creative organization or planning. And since "it is not the power which knows and guides that existence [that is, universal existence] . . . therefore it cannot be the power which created or manifested it."[48] Therefore the mind of the absolute must be a power infinite in essence, never separated from its oneness of consciousness, yet capable of making a scheme of the world clear and definite enough to be clothed in phenomenal form and figure. In other words, it must have what is perfection in the mind—namely, knowledge and will—but it must have none of its inherent imperfections—namely, ignorance and unwarranted oppositions between form and form, subject and object, one and many.

For want of a better word to express his idea, Aurobindo terms this power of divine creative consciousness "supermind." It is this supermind which is the real creator or God (Isvara); and he defines it as "Being moving out into a determinative self-knowledge which perceives certain truths of itself and wills to realise them in a temporal and spatial extension of its own timeless and spaceless existence."[49]

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[43] *Ibid.*

[44] Frank Willoughby, *The Superman* (2d ed.; New York: Authors & Publishers Corp., 1922), p. 14.

[45] *Life Divine*, I, 249.

[46] *Ibid.*, 192.

[47] *Ibid.*, 189.

[48] *Ibid.*, 179.

[49] *Ibid.*, 220.

But lest we should think that this supermind is a kind of infinite mind, he warns us that it is not "mind itself supereminent and lifted above ordinary mentality,"[50] but something radically different.

> An infinite Mind constituted in the terms of mentality as we know it could only create an infinite chaos, a vast clash of chance, accident, vicissitude, wandering towards an indeterminate end after which it would be always tentatively groping and aspiring.[51]

The reason is that an infinite mind constituted like ours would have all the weaknesses of our dividing and falsifying mind in an infinite degree and therefore be infinitely more removed from an essential unity of existence.

If, on the other hand, we understand by an infinite mind something altogether different, then, Aurobindo says, to call such an infinite power by the term "mind" would be a misnomer, for "such a mind would be something quite different from the definition of mind as we know it."[52] "An infinite omniscient, omnipotent Mind would not be mind at all, but Supermental knowledge"[53] and therefore is better called "supermind" than "infinite mind."

THE NATURE OF THE SUPERMIND

From what we have said it must not be supposed that the supermind is a reality different from the absolute sachchidananda, a demiurge fashioning out of pre-existent forms and latent matter copies or limitations of divine perfections. This is not Aurobindo's idea of the supermind. If the supermind bears any resemblance to Greek thought, it is rather to the "Authentic Mind"[54] or *Nous,* the second of the divine hypostases of Plotinus, than to the Demiurge of Plato.

And even this resemblance must not be pressed too far. For if in their functions the *Nous* of Plotinus and the supermind of Aurobindo bear some surface resemblance, in their intrinsic nature they seem to be radically different. For Plotinus, the *Nous* is an irradiation or efflux from the One, somewhat like the rays of light from the sun.[55] He sometimes compares the emanation to an overflow of a spring.[56] But whatever the metaphor he uses, the idea underlying it is that, although the emanation is never severed from the source and always is in continuity with the One,[57] still that which emanates is not an identical reality with the One from which it emanates.[58] Rather, as Armstrong points out, "Plotinus usually speaks of the One as utterly transcending *Nous*."[59] It is in fact so much other than the One in its reality that to apprehend the One it has to forsake or transcend its own nature and intellectual powers and cast itself upon the One in an ecstasy of love.[60]

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[50] *Ibid.,* 187.

[51] *Ibid.,* 179.

[52] *Ibid.*

[53] *Ibid.,* 408.

[54] This rendering is from Grace H. Turnbull's *The Essence of Plotinus* (London: Oxford Univ. Press, 1934), pp. 63-64. Usually *Nous* is simply translated by "Mind."

[55] *Enneads* i. 7. 1; v. 1. 6; v. 3. 12; v. 8. 6, 4; vi. 4. 15; vi. 8. 18; vi. 9. 9.

[56] *Ibid.,* v. 2. 1.

But Aurobindo's supermind is identically the same reality and of the same nature as the sachchidananda absolute; it is sachchidananda itself in its dynamism of a creator rather than in its quiescence of self-existence. Though according to him sachchidananda gets a new status by a shift in the stress of divine consciousness, no new reality is acquired, no real change brought about in it: "Being turns into becoming and yet it is always itself and other than its becomings."[61]

It is true that in one place he calls the supermind "an inherent power of the Sachchidananda."[62] But it is not to be understood in the sense that it is an accidental power or an attribute inherent in the being of sachchidananda. It is rather to be taken as an intrinsic status of sachchidananda, or better still—to quote Aurobindo himself—

> It is Sachchidananda itself . . . but Sachchidananda not resting in its pure infinite invariable consciousness, but proceeding out of this primal poise or rather upon it as a base and in it as a continent, into movement which is its form of Energy and instrument of cosmic creation.[63]

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[57] Thomas Whittaker, *The Neo-Platonists* (Cambridge: Univ. Press, 1901), pp. 54-55: "There is a continual process from first to last, of which the law is the same throughout. Each producing cause remains in its proper seat, while that which is produced takes an inferior station."

[58] *Enneads* vi. 9. 3, 9. 8; v. 5. 13; iii. 9. 3 and 8. 9. In a masterly study of the philosophy of Plotinus, Fr. Arnou contends against Zeller and some others that Plotinus is not by intention a pantheist, though there are passages in him which savor of pantheism or at least are liable to such an interpretation. He analyzes some of these texts and shows that taken in their context they need not necessarily carry a pantheistic significance. Cf. *Le Désir de Dieu dans la philosophie de Plotin* (Paris: Alcan, 1921), pp. 151-87. The same opinion is shared by A. H. Armstrong in *The Architecture of the Intelligible Universe* (Cambridge: Univ. Press, 1940), p. 112, and by Edward Caird in *The Evolution of Theology in the Greek Philosophers* ("The Gifford Lectures," 2 vols.; Glasgow: J. MacLehose & Sons, 1904), II, 210.

[59] Armstrong, *op. cit.*, p. 118.

[60] *Enneads* vi. 7. 35.

[61] *Isha Upanishad*, p. 76.

[62] *Life Divine*, II, Part I, 39.

[63] *Ibid.*, I, 219.

In other words, the absolute is a simultaneous unity of the static and dynamic aspects.[64] Considered in its static aspect, it is sachchidananda; considered in its dynamic aspect, it is supermind. Since, therefore, supermind is not a new reality but a mere stepping out of the sachchidananda from latent dynamism into active dynamism, a movement of self-manifestation or creation, Aurobindo calls the supermind also by the more familiar Indian term *Isvara,*[65] which means "Lord, Ruler, God."

But Aurobindo's Isvara is poles apart from Sankara's. Sankara, too, felt the necessity of finding a god who would cater to the religious sentiments of the simple and practical-minded. But his exalted sense of the absolute immutability and purity of Brahman shrank from identifying God or Isvara with the supreme Brahman. He therefore invented a lower Brahman involved in maya who stood in relation to creatures as a real lord and creator, and in relation to the higher Brahman or Supreme Self as an "Arch-illusionist,"[66] as illusory and unreal as the world itself.

For the Vishistadvaitins the twofold Brahman was unnecessary—nay, did not exist—since they had no difficulty in attributing to Brahman all the auspicious qualities, including the power of creation by self-modification (*Parināmavāda*).

Aurobindo, while admitting the dual aspect of Brahman, took, as Professor Chauduri tells us, the bold step of identifying Brahman and God into a union of absolute integrality.[67] The sachchidananda and supermind are two distinct statuses of one integral Brahman. Even as aspects they can never be completely dissociated, just as they cannot be simply and purely identified, because in their essentiality they are one Brahman. Therefore, wherever supermind is, there is also the sachchidananda absolute involved in it. Hence creation is not the self-manifestation of the supermind of its own self-content, but the manifestation of the supermind of its own self-content essentially drawn from the self-content of sachchidananda, somewhat as the *Nous* of Plotinus draws its being and content of ideas from the One which it contemplates.[68]

The two characteristic attributes of the supermind are knowledge and will. But Aurobindo does not consider them as two faculties altogether similar to those found in a rational nature. By knowledge he understands simply a power of truth-awareness; and by will, a dynamic power of knowledge.[69] Both are in his opinion quite essential for Isvara to produce a world of harmony and ordered relations. Isvara manifested as ''a principle of active will and Knowledge superior to Mind and creatrix of the worlds''[70] is the supermind.

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[64] *Ibid.*, II, Part I, 248.

[65] *Ibid.*, 96-97.

[66] A. E. Gough, *The Philosophy of the Upanishads and Ancient Metaphysics* (3d ed.; London: Paul, Trench, Trubner & Co., 1903), p. 50.

[67] *Sri Aurobindo Mandir Annual*, 1942, pp. 128-32.

[68] *Enneads* v. 4. 2 and 6. 2.

Aurobindo adduces both scriptural and rational proof in support of his statement that the absolute in its creative aspect is a principle of will and knowledge. Leaving aside his scriptural interpretation which he himself insinuates is not so very obvious,[71] let us pursue his reasoning in favor of a Creator who is essentially knowledge and will.

He starts by proving by a logical deduction from the nature of the world phenomenon that God as creator must have will. Everything in creation, he tells us, seems to be hurrying towards a predestined goal and along predestined lines, a progressive action of nature according to law. ''We perceive a process, we are aware of a law.''[72] Each nature works out its possibilities according to predetermined lines, and not chaotically or haphazardly. In spite of the infinite possibilities implied, for instance, in a tiny seed, it nevertheless keeps ''to one law of process and result,''[73] which does not deviate or falter in its process or results. The world presents itself to daily experience as an extension in time and space and as a movement, a working out, a development of relations and possibilities. From this Aurobindo concludes that the uniform and regulated motion in the world[74] demands a hidden force, which is by no means ''an inconsequent Force that acts at random and creates this or that by a general chance without any determining principles,''[75] but a movement of force that struggles to actualise some hidden but ''decisive divine imperative,''[76] a world-force that ''obeys a predetermining Will.''[77] Otherwise we are left with the impossible and untenable paradox that random chance is the cause of persistent order in the world.

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[69] *Life Divine,* I, 185-86.

[70] *Ibid.*, 184.

[71] *Ibid.*, I, 186-88: "And first we may pause a moment and ask ourselves whether no light can be found from the past which will guide us towards these ill-explored domains. We need a name, and we need a starting-point. For we have called this state of consciousness the Supermind; but the word is ambiguous. . . . It is the cryptic verses of the Veda that help us here; for they contain, though concealed, the gospel of the divine and immortal Supermind and through the veil some illumining flashes come to us."

[72] *Ibid.*, II, Part I, 172.

[73] *Ibid.*, 195.

[74] *Ibid.*, 9, 10.

[75] *Ibid.*, 9.

[76] *Ibid.*, 53.

But such an ordered constancy of figures and relations in the working of nature, such a persistent and inward impulsion in things to work out results along definite lines of self-realisation, presupposes more than a blind and autocratic will.

> If there is a Will of the Infinite, it must be a Will that acts in . . . full knowledge and is the perfect spontaneous result of a total self-evidence. It is neither a hampered evolutionary Force bound by what it has evolved nor an imaginative Will acting in the void upon a free caprice; it is the truth of the Infinite affirming itself in the determinations of the finite.[78]

And why should the divine will necessarily carry with it a self-knowledge, a perfect truth-form of itself? Aurobindo's answer is, ''If there were only infinite potentiality without any law of guiding truth and harmonious self-vision . . . the world could be nothing but a teeming, amorphous, confused uncertainty.''[79] But given ''the fixed determinations . . . the mighty rhythms of cosmic law,''[80] such as we notice in life, we must necessarily suppose that nature is ''self-realising by a Knowledge ingrained in its very impulsion.''[81] If, on the other hand, knowledge is denied to the supermind, the universal law that we observe everywhere is inexplicable; every law demands in the lawgiver a perfect knowledge of the truth the law is intended to express. Hence, to explain this ordered universe of ours, Aurobindo says, ''Infinite Consciousness must first translate itself into infinite faculty of Knowledge or . . . omniscience.''[82]

He finds in the facts of life evident proof of his statement.

> We perceive behind the action of Mind, Life and Body, something that is not embraced in the stream of Force but embraces and controls it; something . . . that has created in its being a world of which it has the omniscience, something that . . . has already in its consciousness a perfect Form of itself and is here gradually unfolding it. The World expresses a foreseen Truth, obeys a predetermining Will, realises an original formative self-vision.[83]

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[77] *Ibid.*, I, 181.
[78] *Ibid.*, II, Part I, 53-54.
[79] *Ibid.*, I, 201.
[80] *Ibid.*, 407.
[81] *Ibid.*, 196.
[82] *Ibid.*, 178.
[83] *Ibid.*, 181.

Although, as we have seen in a previous article, the absolute is free inasmuch as its conscious force is not limited by anything intrinsic or extrinsic, still it is in the supermind status that freedom appears as a real attribute, as a formal expression of the divinity. Aurobindo attributes to the supermind all that is usually applied to a free agent. It has, for instance, freedom of execution, because it is "an existence which is not compelled by the movement"[84] of force. It is "free to manifest or not to manifest the potentiality of movement";[85] that is to say, "free to move or remain eternally still."[86] It has therefore real option to act or not to act. And the reason why Aurobindo attributes to God the liberty of action is that "a God compelled by force without option as to whether it shall be manifest in the universe or remain unmanifest . . . is not the supreme infinite Existence."[87] And he even adds that to affirm that God is compelled by his own nature to manifest, even if he is not compelled by any exterior power, does not remove the contradiction that is implied in a God subject to necessity.[88]

The supermind has not only freedom of action, but also freedom of choice. For it is "a selective faculty of Knowledge,"[89] "capable of holding back all that is not needed for the movement"[90] of world formation. Out of infinite possibilities "it decides the actualities"[91] according to a definite plan,[92] quite "aware of its starting-point and goal,"[93] "needing nothing,"[94] but producing all for the sheer joy of self-manifestation.[95] And even after making a scheme, it is not bound to keep it, but can change or rearrange it as it likes.[96]

After having told us so much of the knowledge-will aspect of the supermind, Aurobindo warns us against supposing that the knowledge and will in the supermind creator are two really distinct potencies or faculties.

> In the Supermind being consciousness of knowledge and consciousness of will are not divided as they seem to be in our mental operations. . . . In the Supermind, knowledge in the

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[84] *Ibid.*, 125.
[85] *Ibid.*, 128.
[86] *Ibid.*, 137-38.
[87] *Ibid.*, 127.
[88] *Ibid.*, 128.
[89] *Ibid.*, 174.
[90] *Ibid.*, II, Part I, 73.
[91] *Ibid.*, 29.
[92] *Ibid.*, I, 60, 173.
[93] *Ibid.*, 64.
[94] *Ibid.*, 137.
[95] *Ibid.*, II, Part I, 70.
[96] *Ibid.*, 235.

> Idea is not divorced from will in the Idea but one with it. . . . In our mentality all are different. We have an idea and a will . . . we differentiate effectually the idea from the will and both from ourselves. I am; the idea is a mysterious abstraction that appears in me, the will is another mystery . . . but always something that is not myself, something that I have or get or am seized with, but am not. . . . But in the Supermind there is no such paralysing division, because knowledge is not self-divided, force is not self-divided, being is not self-divided as in the mind; they are neither broken in themselves, nor divorced from each other. For the Supermind is the Vast; it starts from unity, not division.[97]

To sum up, supermind has both a knowledge of the various possibilities of creation and the selective power to choose and the effective power to execute what it chooses. And yet Aurobindo does not dare call God[98] a person as Ramanuja would do. Ramanuja's Brahman is a person, because it is a being endowed with intelligence and will and all lovable qualities, so that souls can really turn to it in a spirit of worship and ardent love (*bhakti*).[99] Aurobindo does not exclude this aspect in his supermind.[100] But he contends that "that is only one side of the being of Isvara; the Nirguna immobile and without qualities is another aspect of His existence."[101] The supermind is in no sense an individual substance, but a universal being, an integrality of the one and the many. Though it has all the attributes of a person and is expressive of movement and activity, it retains also its impersonal immobility and featurelessness, inasmuch as "it remains not for a moment shaken or disturbed or altered by its action and movement."[102] In brief, the supermind is a transcendental integrality of personality and impersonality and by no means a person "of the ordinary occidental conception."[103]

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[97] *Ibid.*, I, 196-98.

[98] Since Aurobindo conceives the supramental reality as "the universal One" (cf. *Life Divine*, II, Part II, 47-48), he fears that by defining God as a person we might make God a limited being. Hence he insists over and over again that the supermind "is not the personal God of popular religions, a being limited by his qualities, individual and separate from all others; for all such personal gods are only limited representations or names and divine personalities of the one Isvara" (*Ibid.*, Part I, 87).

[99] Ramanuja Bhashya, III. 2. 23 (*Sacred Books of the East*, XLVIII, 617). Ramanuja's religion is described by B. Kumarappa as "the worship of a Personal God conceived as supreme Perfection characterized by love" (*The Hindu Conception of the Deity as Culminating in Rāmānuja* [London: Luzac & Co., 1934], p. 148).

[100] *Life Divine*, I, 200: "We must not indeed exclude the personal aspect of the Deity, for the impersonal is only one face of existence; the Divine is All-existence, but it is also the one Existent."

[101] *Ibid.*, II, Part I, 87.

[102] *Ibid.*, 64.

THE CREATIVE MANIFESTATION OF THE SUPERMIND

To explain creation Aurobindo has cogently argued to the existence of knowledge and will in the supermind. But he has yet to explain how the pure consciousness of the absolute status of Isvara translates itself into well-ordered creative knowledge; in other words, how the supermind, given its pure unitive consciousness, can at all formulate into a world-creative movement within itself. For creation, according to Aurobindo, is not production of something distinct from the creator, but a movement within the creator which "draw[s] out of the One its hidden multitudes,"[104] a production in an extended time and space, "true self-determinations of its being,"[105] without however losing its transcendency[106] or "incurring a real bondage."[107]

Aurobindo explains this process of creative manifestation. The first movement of the unitive consciousness of the supermind is to take the form of the vision of itself. This is not fundamentally different from pure consciousness, which is the supermind's inalienable right and perfection; for whatever form of concentration it may take it remains always "a principle superior to mentality and exists and acts and proceeds in the fundamental truth and unity of things."[108] Still, owing to its will to create, which at the initial stage is not a choice to create this or that universe, but rather an impulse or a divine imperative[109] to move into effective energy, there arises in its consciousness a complete form of itself, which Aurobindo terms the "Real-Idea."[110] He describes it also as "the Word, the Name vibrating out of the nameless Silence, the Form realising the formless essence,''[111] or ''the seed [which] is the Truth of its own being,''[112] or simply ''the original Truth.''[113]

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[103] *Ibid.*, I, 200: "Obviously this is not the too personal and limited Deity, the magnified and supernatural Man of the ordinary occidental conception; for that conception erects a too human *eidolon* of a certain relation between the creative Supermind and the ego."

[104] *Ibid.*, 190.

[105] *Ibid.*, II, Part I, 27.

[106] *Ibid.*, 62, 67; I, 46.

[107] *Ibid.*, I, 60; II, Part I, 72.

[108] *Ibid.*, I, 218.

[109] *Ibid.*, II, Part I, 259.

[110] *Ibid.*, I, 197. Though the term "supermind" may recall to us the terminology of Nietzsche in his *Thus Spake Zarathustra* (tr. by Alexander Tille ["Everyman's Library"; London: Dent, 1933]), still, in significance, Aurobindo's supermind and real-idea have a closer resemblance to the "absolute mind" and "infinite idea" of Hegel (cf. *The Logic of Hegel*, tr. by William Wallace [2d. ed.; Oxford: Clarendon Press, 1892] pp. 287-91, and *Hegel's Philosophy of Mind*, tr. from the *Encyclopaedia of the Philosophical Sciences*, with five introductory essays, by William Wallace [Oxford: Clarendon

Whether it is from the *Logos* of Philo[114] or the *Verbum* of St. John[115] or the *Vac* of the Vedas[116] or the *Begriff* of Hegel[117] that Aurobindo drew his inspiration, it is difficult to ascertain. It is likely that all these together may have influenced him in conceiving the first act of the knowledge of God as a word fecundating his effective self-awareness. In any case, he implies much more by his ''real-idea'' or

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Press, 1894]). In fact, S. K. Maitra has aptly remarked: "But if his contact with Greek philosophy is so real, no less real is his contact with modern Western thought. He is not in the habit of mentioning names, but as one reads his books, one cannot fail to notice how thorough is his grasp of the great Western philosophers of the present age, such as Kant, Hegel, Spencer, and Bergson" (*Sri Aurobindo Mandir Annual*, 1942, pp. 89-90).

[111] *Life Divine*, I, 234.

[112] *Ibid.*, 195.

[113] *Ibid.*

[114] *Logos* is the Greek form of the Latin *verbum*, which means "word." It is in Heraclitus that the theory of *Logos* appears for the first time and is there identified with fire. The Stoics used it to signify either the controller of the universe or the germ from which all else developed. Conformably to the Stoic theory, Philo, an Alexandrian Jew, represented *Logos* as the creative word of God. But he understood by it not a person but something impersonal, an idea, a power, a law, that upheld and governed the development of the world (cf. Jules Lebreton, S.J., "Logos," *Catholic Encyclopedia*).

[115] St. John writes in his Gospel: "In the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by him, and without him was made nothing that was made. In him was life, and the life was the light of men. . . . And the Word was made flesh and dwelt among us (and we saw his glory, the glory as it were of the only begotten of the Father) full of grace and truth" (Douay Version, 1:1-14). For St. John, therefore, the *Logos* is not an impersonal power but the only begotten Son of God, consubstantial Word of the Father, who assumes in time a real human nature and becomes the incarnate Word of God, Jesus Christ.

[116] Rig-Veda, X. 125. Vak is presented here as the goddess of speech. Perhaps the closest approach of Vak to *Logos* is to be found in Panchavimsha Brahmana, XX. 14. 2: "Prajapati alone was his universe. He considered: let me send forth this Vak. She will traverse and pervade all things." Even here Vak in the sense of world form or world soul fits in better with the context than *Logos* in the Christian sense or in the sense used by Aurobindo.

[117] *Begriff* is translated by G. R. G. Mure as "notion" (cf. *An Introduction to Hegel* [Oxford: Oxford Univ. Press, 1940], p. 137). But Wallace in *The Logic of Hegel* calls it a "self-actualising universal Thought" (p. 36) or "Infinite Thought" (p. 62). Whatever be the exact translation, it is clear that the "creative thought" of Hegel is neither sensation nor conception (cf. *ibid.*, p. 36). "Thought has a different part to play from what

''vibrating word'' than is suggested by either Vac or Hiranyagarbha in the Vedas.[118] For at least in its inception the real-idea is not a mere speech form or world form, but purely and simply the form or truth of God himself in which the world form or world truth is present by implication. It is primarily a form of the formless essence. That is why somewhat in the manner of the Prologue of St. John's Gospel, he writes: ''It is out of the Silence [pure Existent] that the Word which creates the worlds forever proceeds; for the Word expresses that which is self-hidden in the Silence.''[119]

Moreover, this word or real-idea not only springs from the silent existence of God, but is one substance with it. ''It is the Light of the reality illuminating itself. It is not a mental thought, nor imagination but effective self-awareness.''[120] Though the word is a light of self-awareness shining in God, it is not different from God. For ''as the power of burning light is not different from the substance of the Being, so the power of the Idea is not different from the substance of the Being which works itself out in the Idea and its development.''[121] The base and substance of the real-idea is truth: ''Truth is the substance, Truth rises in the Idea, comes out in the form.''[122]

Since truth is the form and substance of the real-idea, Aurobindo sometimes calls the supermind informed by this idea ''a supermental Truth Consciousness,''[123] or ''a Supreme totally self-aware and all-

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it has if we speak of a faculty of thought, one among a crowd of other faculties, such as perception, conception, and will. . . . When it is seen to be the true universal of what nature and mind contain, it extends its scope far beyond all these, and becomes the basis of everything" (*ibid.*, p. 47). In another place we are told that "thought, regarded as *activity*, may be accordingly described as the active universal" (*ibid.*, p. 36), "the Ideal totality of the Idea" (*Hegel's Philosophy of Mind*, p. 164).

[118] Rig-Veda, X. 72. Dasgupta tells us that there the supreme being is extolled as the supreme lord of the world called "the golden egg" (*A History of Indian Philosophy* [Cambridge: Univ. Press, 1922], I, 23). Likewise Radhakrishnan says that according to Manu and the Puranas, "God was the author of Chaos. He created it by His will, and deposited a seed in it which became the golden germ in which He Himself was born as the Brahma or the Creator" (*Indian Philosophy* ["Library of Philosophy"; London: Allen & Unwin, 1923-27], I, 100-101), Sri Ananda Acharya, too, takes *hiranyagarbha* to mean "the unmanifested universe in its causal form, existing as design in the mind of Isvara" (*Brahmadarsanam* [New York: Macmillan Co., 1917], p. 167). Thus the obvious sense in which *hiranyagarbha* is used is more the form of the world than form of God or *Logos*.

[119] *Life Divine*, I, 40.

[120] *Ibid.*, 197.

[121] *Ibid.*

[122] *Ibid.*, 199.

[123] *Ibid.*, 177.

aware Intelligence.''[124] Intelligence here is to be understood in a broad sense, for it does not imply a subject knowing an object; in the supreme, as he has told us often, there is no subject-object relation. According to him, the intelligence of God is not knowledge in an eminent degree, but simply ''a self-aware truth of being in which self-knowledge is inseparable from self-existence.''[125] In the pure consciousness of sachchidananda it is an awareness by self-identity; in the supermind it is self-awareness in the form of an idea.

This truth consciousness of the supermind must not be considered as a static state of self-vision in the idea. Since the idea has sprung up by an inherent impulse, or will to become; since it is in its nature ''a pregnant vibration of consciousness,''[126] ''initial coming out in creative self-knowledge,''[127] the dynamism of self-unfolding into ''the harmonies of its infinite potential multiplicity''[128] is always ''inherent in the Idea.''[129] It could not be otherwise, for the real-idea ''is always that secret, burdened, self-knowing force which labours to manifest the form of itself with which it is charged.''[130]

The unfolding of the real-idea under the secret impulsion or will to create inherent in it takes place in three ways, and accordingly the knowledge or consciousness corresponding to them is of three kinds: the comprehending consciousness, the apprehending consciousness, and the projecting consciousness. In all these there is never a ''paralysing division,''[131] ''no separating distinctions as are found in mind-knowledge.''[132] Some differentiation is made; the many are released; but in the releasing ''it does not lose itself in the differentiations'';[133] it ''maintains unity in diversity, stability in utmost mutability; insists on harmony.''[134] For whatever be the poise or form the divine consciousness might take, the sense of unity in multiplicity is never lost because ''to see things steadily and see them whole . . . is the very nature of the Supermind'';[135] ''the Supermind possesses and acts always, fundamentally, on this truth of unity.''[136]

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[124] *Ibid.*, II, Part II, 1105.
[125] *Ibid.*, I, 206-7.
[126] *Ibid.*, 196.
[127] *Ibid.*
[128] *Ibid.*, 201.
[129] *Ibid.*, 196.
[130] *Ibid.*, 170.
[131] *Ibid.*, 198.
[132] *Ibid.*, 189.
[133] *Ibid.*, 190.
[134] *Ibid.*, 194.
[135] *Ibid.*, 205.
[136] *Ibid.*, 208-9.

We shall now describe the three descending degrees of consciousness, which are really three degrees of concentration of divine consciousness, or three steps towards creation or world formation.

The finality of the real-idea is to evolve itself; that is to say, to create by self-manifestation. And the idea being the form of the divine and coextensive with it, it naturally and spontaneously[137] unfolds its infinite contents, unburdens the totality of the divine possibilities, in an infinite stream of self-formulating force;[138] "out of the seed there evolves that which is already in the seed,"[139] "a play, a rhythm, a development of its own existence."[140]

All this happens under the impulsion of force or will to create. But the creative evolution or self-formulation of the idea is not a mechanical movement of force; it is "a world-play as it has been conceived by Sachchidananda."[141] Hence "Truth-Consciousness . . . contains and upholds the diffusion;"[142] knowledge in the idea, which is never separated from the will in the idea, accompanies the movement of force, "pervading and inhabiting at once the seed and the tree and all objects."[143] That is to say, the consciousness of the supermind at this step is indivisibly present in each and all the formulations, so that "all is in each and each is in all."[144]

> There is no independent centre of existence, no individual separated ego; the whole existence is to its self-awareness an equable extension, one in oneness, one in multiplicity, one in all conditions and everywhere . . . the All and the One are the same existence . . . identity (with all beings) is inherent in supramental cognition.[145]

In brief, "the high concentration"[146] of the sachchidananda takes, in this status of the supermind, the form of a self-extension by equal pervasive concentration, by indivisible comprehension, by universal undistributed immanence.[147]

Naturally the knowledge corresponding to such a total immanence in its own working is a vast "cosmic vision which is all-comprehensive, all pervading, all-inhabiting;"[148] "it is one movement, indivisible, though seeming to be divided, not distributed between its forms, although appearing to distribute itself and to stand separate in each.''[149] It is so comprehensive and all-pervasive that it is ''very near to subjective knowledge by identity,''[150] proper to the sachchidananda status of the absolute.

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[137] *Ibid.*, 205.
[138] *Ibid.*, 188.
[139] *Ibid.*, 169.
[140] *Ibid.*, 170.
[141] *Ibid.*, 171.
[142] *Ibid.*, 194.
[143] *Ibid.*, 210.
[144] *Ibid.*, 195. (Cf. *Enneads* v. 8. 4 for an identical expression.)
[145] *Ibid.*, 212.
[146] *Ibid.*, 211.
[147] *Ibid.*
[148] *Ibid.*, 207.

But this knowledge being one intuitive grasp of the total movement of divine creative energy in the idea, it would at most place rhythms of divine manifestation, one running into another in orderly unity, before the vision of the supermind. But it would not give definite world harmonies such as are required on the supposition that God wants to create a real world of self-manifestation. Hence another movement in the real-idea is required, which not only contains the divine diffusion but develops world-harmonies of itself out of it. This developing movement of the supermind, which is not a primary act of it but a secondary one,[151] is termed by Aurobindo ''apprehending consciousness'' in contradistinction to the comprehensive consciousness described above.

How is this apprehending consciousness brought about? The supermind, by its power of differentiation, begins by differentiating out of the indivisible unity of sachchidananda, *sat* and *chit* and *ananda.* This differentiation is not division;[152] the unity is never broken. But in order to liberate all their respective potentialities, the supermind confronts itself now with the *sat* aspect, now with the *chit* aspect, now with the *ananda* aspect, without ever dissociating them completely. It only brings forward ''one or other of them as the effective Deity which contains the others involved or explicit in itself and this process it makes the foundation for all other differentiations.''[153]

Having thus differentiated the triune principles—''yet maintaining them in the unity''[154]—by a secondary activity of the supermind,

> the Divine Consciousness stands back in the idea from the movement which it contains, realising it by a sort of apprehending consciousness, following it, occupying and inhabiting its world, seeming to distribute itself in its forms. In each name and form it would realise itself as the stable Conscious-Self the same in all; but also it would realise itself as a concentration of Conscious-Self following and supporting the individual play of movement and upholding its differentiation

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[149] *Ibid.*, 208.
[150] *Ibid.*, 188-89.
[151] *Ibid.*, 224, 198.
[152] *Ibid.*, 194-95. (Cf. *ibid.*, **II, Part I, 66.**)
[153] *Ibid.*
[154] *Ibid.*

> from other play of movement,—the same everywhere in soul-essence, but varying in soul-form. This concentration supporting the soul-form would be the Individual Divine or Jivatman as distinguished from the Universal Divine or one all-constituting self. . . . The universal divine would know all soul-forms as itself and yet establish a different relation with each separately and in each with all the others. The individual Divine would envisage its existence as a soul-form and soul-movement of the One and while by the comprehending action of Consciousness it would enjoy its unity with the One and with all soul-forms, it would also by a forward or frontal apprehending action support and enjoy its individual movement and its relations of a free difference in unity both with the One and with all its forms.[155]

We have quoted this passage *in extenso* as Aurobindo's clearest statement of this point. In plainer language, it all comes to this: Since some kind of differentiation is necessary so that the world constructions may be possible, a mere comprehensive view of all the possibilities such as is obtained in the first poise of the supermind is not enough. Individual centres must be realised. But how? To understand this we must bear in mind that in Aurobindo's theory consciousness and force are twin realities in the divine. Force is the dynamic and developing aspect of consciousness, and consciousness the supporting and stable aspect of the dynamism. In the comprehensive consciousness, consciousness and force accompany the diffusion without differentiation, but as a unity in duality.

Now, for the purposes of differentiation, Aurobindo tells us, the supermind, by a secondary forward or frontal movement, makes consciousness stand back from the movement which it contains. In each of the potential forms of the divine consciousness, consciousness stands in relation to force as the Self and Not-Self of Fichte[156] or the *purusha* and *prādhana* of Sankhya philosophy.[157]

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[155] *Ibid.*, 223-24.

[156] "Fichte has been called a subjective idealist, the best representative of his type. . . . The whole content of his philosophy is developed by analysis of self-consciousness. . . . The self as starting-point involves whatever I know. . . . This original act of the self made explicit, evolves the three stages or moments of the dialectic: (1) the ego posits itself (states its existence as the act by which it takes possession of itself creatively); (2) a non-ego is opposed to the ego; the ego is negated; (3) the ego and non-ego are recognized in reciprocal limitation as the outcome of this movement from thesis to antithesis and synthesis" (H. W. Dresser, *A History of Modern Philosophy* [New York: Thos. Y. Crowell Co., 1928], pp. 103-205).

[157] "According to the Sankhya, there are two entities independent and distinct, the prādhana or prakriti, consisting of the three qualities of sarrva (intelligence), rajas (activity) and tamas (inertia) which is the prime cause of the whole material world, and the purushas or souls that are

This secondary activity of the supermind, by which *purusha* ("soul") stands back from *prakriti* ("nature") brings to the fore the inherent freedom of the supermind. For the very differentiation presupposes in it a power of selection. Not all forms are actualized.

> Terrestrial or material existence is only a part manifestation, it is a system of actualised possibilities of Being which does not exclude other possibilities not yet actualised or not actualised here . . . even what is nowhere actual in any universe, may be a truth of being, a potential of being.[158]

If, then, not all forms are actualized, but only such as are found to fit in with the schemes of worlds thought out by the divine, then we must presume a selecting and directing power in the supermind. Aurobindo neatly sums up his position in the following words:

> We presume a directing faculty, an active power corresponding to the original perceptive power which brings out the phenomenon and, working out . . . according to the line of the original perception, prevents it from being overpowered by all the infinite possibilities that are other than itself. Infinite Consciousness in its infinite action can produce only infinite results; to settle upon a fixed Truth or order of truths and build a world in conformity with that which is fixed, demands a selective faculty of knowledge commissioned to shape finite appearance out of the infinite Reality.[159]

This selective and directive power of world formation which is manifested in the secondary activity of the supermind and in which the freedom of the divine is associated, Aurobindo calls the divine maya. It is not the illusory maya of Sankara,[160] but a real power of

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infinite in number. . . . The Purusha, absolutely inactive, is a witness of the active Prakriti. It is the union of these two that leads to the Creation and involves the purusha in the samsara" (V. S. Ghate, *The Vedanta* ["Govt. Oriental Series," Class C, No. 1; Poona: Bhandarkan Oriental Research Institute, 1926], p. 15). It must be noted, however, that, though the activity of the force in Aurobindo's theory takes place "under the witnessing eye of the Conscious being" (*Life Divine*, II, Part I, 46), still, unlike pradhana which is an essentially distinct being from the souls or purushas, force in Aurobindo's theory is an essential attribute of the one and the same divine being; there is no essential opposition between them.

[158] *Life Divine*, II, Part I, 282-83.

[159] *Ibid.*, I, 174.

[160] Aurobindo rightly contends that the original Vedic meaning of "maya" did not signify illusion, but a mysterious power of God which only later on came to signify illusion, dream, and so on. Against Dr. Gough, who avers that the doctrine of maya in the sense of the unreality of the world "is the very life of the primitive Indian philosophy," are Colebrooke, Max Müller, Ghate, and a host of others, who find the statement of Dr. Gough unfounded at least so far as the Upanishads are concerned. Radakrishnan

infinite consciousness to comprehend, contain it itself, and measure out; that is to say, to form (for form is delimitation), name, and shape out of the vast illimitable truth of infinite existence. It is by maya that static truth of essential being becomes ordered truth of active being.[161] Given this maya in God, all creation becomes "ultimately willed by the Brahman,"[162] even "the phenomena of evil, ignorance and pain in the cosmos,"[163] for which the human mind wrongly seeks to free Brahman of his responsibility. The whole purpose of creation is *lila,* the divine creative sport of infinite delight.[164] Hence, even as "pain of mind and body is a device of Nature, that is to say, of Force in her works, meant to subserve a definite transitional end in her upward evolution,"[165] so also in the moral sphere "ethics is only a stage in evolution,"[166] a stage in "the urge of Sachchidananda towards self-expression."[167] So unlimited indeed is the play of will of the supermind in the creative self-manifestation, that Aurobindo condemns the attempt of human thought to force an ethical meaning into the whole of nature as "one of those acts of wilful and obstinate self-confusion, one of those pathetic attempts of the human being to read himself, his limited habitual human self, into all things."[168]

To these two activities of the supermind Aurobindo adds a third one as a necessary adjunct of the creative manifestation. He calls it the "projecting consciousness." In the comprehending consciousness the supermind sees without distinctness, as it were in a global vision, the totality of divine self-manifestation. In the apprehending consciousness the supermind confronts itself with a nature (force)

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quotes Rig-Veda in favor of his belief that even in the Vedas "maya" signified power rather than illusion. Prof. Prabu Dutt Shastri's book, *The Doctrine of Māyā in the Philosophy of the Vedanta* (London: Luzac & Co., 1911), is a very valuable historical study of the development of the doctrine of maya both in the scriptures and in the commentaries. After a careful examination of the seventy-five hymns of the Rig-Veda in which the word "maya" occurs, Prabu Dutt Shastri concludes that the two chief meanings assigned to the word are "power" and "deception" and that wherever it means power, the idea of mystery necessarily goes with it—that is, it does not mean any physical power but a "mysterious power of the *will.* Hence it is easy to understand the transition later on from the idea of 'mysterious will-power' to that of 'deception,' 'illusion'" (cf. pp. 8-11).

[161] *Life Divine,* 1, 174.

[162] *Ibid.,* 48.

[163] *Ibid.*

[164] *Ibid.,* 147 (cf. *Isha Upanishad,* p. 53).

[165] *Ibid.,* 162.

[166] *Ibid.,* 146.

[167] *Ibid.*

[168] *Ibid.,* 144.

from which it stands aloof. The third activity of the supermind, Aurobindo tells us,

> would be attained if the supporting concentration were no longer to stand at the back, as it were, of the movement, inhabiting it with a certain superiority to it and so following and enjoying, but were to project itself into the movement and to be in a way involved in it.[169]

That is to say, in the apprehending consciousness the cosmic soul, following the movement of nature, supported each of its formulations and in each constituted itself as the individual soul, without, however, ceasing to be at the same time the cosmic and ultimately the divine transcendent self. Multiplication of centers was only a practical act of consciousness ''intended to institute a play of difference, of mutuality.''[170] Hence it produced ''a practical distinction in consciousness but . . . no essential difference of consciousness or true division in its vision of itself'';[171] for unity was still the essential basis of its activity, ''a difference based upon essential unity.''[172]

But in this third poise of self-projection the characteristic feature is ''a sort of fundamental blissful dualism in unity . . . between the individual Divine and its universal source'';[173] a play of relations between form and form, principle and principle, is the practical field of its conscious experience.[174]

Still, even in this play of self-diversification of individual centralization there is no real division or separation from the fundamental sense of unity, which is the dominant principle on which the supermind acts in all its ranges. In none of its movements of world formation is there any ''lapse into the falsehood and the Ignorance'';[175] ''we cannot stamp any of these three poises with the stigma of falsehood and illusion.''[176] Real division and distinction of objects begins when the principle of mind ignorance intervenes and makes individual centers think they are really separate from the others and act on that ignorance.[177]

But in the supermind, ignorance is not formally present. It is there as a potential power[178] which could, at a later stage of its play of self-division, intervene to bring about an apparent surface clash of forces in a world of phenomena.[179] All the same, inasmuch as the projecting activity of the supermind makes unity subordinate to the play of duality, it can rightly be regarded as the "parent of that awareness by distinction which is characteristic of the Mind"[180] involved in ignorance. But since, at the same time, by its comprehending consciousness it has knowledge very near to sachchidananda's knowledge by identity, it can also be regarded as "the child of that Self-awareness by identity which is the poise of the Brahman."[181] It is in fact midway between the immutable one above and the mutable many below;[182] it becomes many-in-one and yet remains one-in-many, "because it was originally One, that is always potentially Many."[183]

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[169] *Ibid.*, 224.

[170] *Ibid.*, 213.

[171] *Ibid.*, 214.

[172] *Ibid.*, 213.

[173] *Ibid.*, 225.

[174] *Ibid.*, 224.

[175] *Ibid.*, 226.

[176] *Ibid.*

[177] *Ibid.*, 196.

[178] "The Absolute Reality contains all; nothing can be outside, pain and sin and all; true. But these do not exist as such in the supreme status, they

Thus, in Aurobindo's philosophy, the supermind poise of the absolute forms "an intermediate link"[184] between the higher worlds of unitive consciousness—*sat, chit,* and *ananda*—and the lower worlds of divided consciousness effected by ignorance—mind, life, and matter. Looked at again from another point of view, it is in the process both of involution or descent of God into creation and of ascent or evolution of God in matter, a fourth principle.[185]

Aurobindo firmly believes that he is not an inventor of the principle of supermind, but that it was "already in existence from ancient times."[186] The name under which it was commonly known, he adds, was "*Turīyam svid,* a certain fourth, or also *Turīyam dhama,* the fourth placing or poise of existence";[187] or again *rta cit,* "which

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are resolved each into its ultimate and fundamental force of consciousness. . . . Still, in the Divine Consciousness things of Knowledge alone exist, things of Ignorance cannot be said to exist there on the same title, because, as I have said, the original truth of things alone are there, not their derivations and deformations. One can say indeed that in the supreme Light darkness exists as a possibility. . . . Possibility really means just a chance of the consciousness acting in a certain way, developing in a particular direction under certain conditions" (extracts from a letter addressed to me on June 27, 1945, by Mr. Nolini Kanta Gupta, the secretary of the Sri Aurobindo Asram).

[179] *Life Divine,* I, 186, 212.

[180] *Ibid.,* 226.

[181] *Ibid.,* 189.

[182] *Ibid.,* 189-90.

[183] *Ibid.,* 190.

[184] *Ibid.,* 218.

[185] *Ibid.,* 408.

[186] *The Riddle of the World* (1st impression: Calcutta: Arya Pub. House, 1933), p. 32, note.

[187] *Life Divine,* I, 408. It is true the Yoga Sutras speak of a fourth state of consciousness (the other three are the waking, sleeping, and dreaming) where in a dreamless trance the soul is in a blissful union with its inner self, God. But to take this state of *samadi* ("blissful union") as a creative

means the consciousness of essential truth of being (satyam), of ordered truth of active being (rtam), and the vast self-awareness (brhat) in which alone this consciousness is possible.''[188] But because of failure to utilize it integrally for life, and more especially because the later Vedantists forgot or ignored this important aspect of God, Indian philosophies, Aurobindo tells us, were led either into narrow affirmations of Vedic truths or into false denials of either the world or the absolute.[189] Whereas, if this ''intermediary term . . . the beginning and end of all creation and arrangement,'' is accepted as a fact, then we are in possession of the integral truth about God, ''the utter Absolute and real which (though something ineffable and mentally inconceivable), yet justifies to us both our knowledge of God and our knowledge of the world''[190]—our knowledge of God as the supreme sachchidananda which is in its essentiality both Nirguna and Saguna, our knowledge of the world as the creative manifestation or ''unfolding of the Chit-Force in new forms and stresses.''[191]

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aspect of God can hardly enter within the scope of either Yoga or Vedanta since in neither of them can spiritual evolution of the type Aurobindo speaks of be found as an evident doctrine. Hence to compare *turiya* state to supermind state seems to be a bit far-fetched.

[188] *Life Divine*, I, 177.

[189] *Ibid.*, 227.

[190] *Ibid.*, 190.

[191] Mr. Gupta, in the letter referred to above, n. 178.

ALPHABETUM SCOTI

ETIENNE GILSON

1. Entity *(entitas)* is the property of everything that possesses being in any sense to any degree.

2. Intelligibility always accompanies entity. Being is intelligible by the very fact it is being.

3. First in reality, being is consequently also the first notion that is conceived by our intellect. Every knowledge is a knowledge of variously modified being.

4. Being is divided into being of reason and real being. Being of reason, which is that of real being as object of knowledge, exists only in the intellect. It is the proper object of logic. All other sciences bear on real being taken at various levels of abstraction.

5. Real being is divided into quidditative being and being of existence. Quidditative being is the object of metaphysical science.

6. Quidditative entity is a real being, but has not of itself a being of existence. Quidditative entity is that of an essence. Its reality consists in its conformity to an exemplar model, which is its idea in God.

7. Every quidditative entity possesses a unity corresponding to that of its exemplar model and circumscribed by its definition.

8. Two entities quidditatively distinct are really distinct. The reality of their distinction is that of their being, which is not the being of existence, but quidditative being.

9. The quidditative distinction, inasmuch as it is founded on quidditative entity itself, is prior by nature to every act of intellect. This real distinction between quiddities, essences, or forms, is ordinarily called ''formal distinction.'' The formal distinction consequently holds between two or more quidditative beings quidditatively different.

THIS SUMMARY (translated by the Editor) is Appendix III (pp. 676-80) of Jean Duns Scot: Introduction à ses positions fondamentales, *which will be published in 1952 by Librairie Philosophique J. Vrin, Paris.*

In this translation, entité *is "entity"; * être *is "being"; * quidditatif *is "quidditative";* existant *is "existent."*

10. Since quidditative being is not a being of existence, many formalities really distinct in the order of quidditative being can enter into the composition of an existent being without disrupting the unity of its being of existence.

11. Two entities quidditatively distinct are unequal. Consequently the totality of entities quidditatively distinct forms a hierarchy of entities quidditatively ordered.

12. Every quidditative being possesses a unity of the same order as its being; that is to say, quidditative. This unity, which is that of the essence, is a lesser one than that of the individual, but a greater one than that of the universal. Its unity is that of a nature not determined either to individuality or universality, but determinable to either.

13. The quidditative being of the common nature never loses its unity under any one of its determinations.

14. To predicate quidditative being or essence as essence, is to predicate *in quid;* and since essence or quiddity is common in virtue of its very indetermination, the predication of essence as such is always univocal.

15. The most formal of all essences is being; consequently its predication is always univocal. This univocity is to be understood only of the order of quidditative being. Quidditative realities are the real being about which the metaphysician speaks.

16. Every essence has an objective possibility of existence provided only that it is not self-contradictory. To have a subjective possibility of existence, it is further necessary that it be individualized. Individuation does not give existence, but it is the ultimate formal condition of its possibility.

17. The individuating act *(haecceitas)* consequently belongs to the order of quidditative and formal entity; but it is not itself a form, or else it would determine a new species. The individuating act is, in the form, its ultimate actuality.

18. The being of existence belongs only to individuals. It is complete being, in the full sense of that word, and pertains either to the essence whose perfection itself includes existence, or to essences that have been placed in actual existence by a cause, in virtue of the latter's efficacy.

19. Every existent endowed with an active form can cause the being of other existents that are its effects. The existential causality

of an existent is quidditatively determined by its form. Certain forms are active, others not; this is a primary datum that must be accepted as such.

20. Since every existent has a quidditative being of a determinate degree, the hierarchy of beings is accompanied by a corresponding hierarchy of causes. These causes are essentially ordered within that hierarchy, and the act of the inferior cause presupposes that of the superior cause. A series of causes essentially ordered is necessarily finite and demands a first cause whose causality is itself unconditioned.

21. Since natural philosophy bears on existents, the natural philosopher determines causes beginning with beings whose existence is given. Since metaphysics bears on essences, whose being is quidditative, the metaphysician abstracts from actual existence and considers in being only the essential conditions of all causality.

22. The existence of physical causes and effects implies that being is capable of causality and effectibility, which are metaphysical properties of being.

23. The possibility that effects should be produced (effectibility) presupposes the possibility of a first cause, whose causality, in virtue of its very primacy, excludes all effectibility. A first and per se cause is consequently possible.

24. If the causality in question is that of being, the possibility of the first cause is that of a being per se and uncaused. But its very possibility presupposes its existence; consequently it exists.

25. The per se being whose actual existence can be inferred, beginning with the quidditative properties of causes and effects actually given, is that being which we call God.

26. A being that is first in the line of being is everything it is possible to be, because the actuality of being is the source of its possibility in it. Consequently, it is being in its absolute intensity; that is to say, the infinite being.

27. The infinite being is the being which exceeds every finite being beyond any conceivable proportion.

28. Infinity is the proper modality of the divine essence. Consequently, it is its haecceity; that is to say—conformably to the definition of the term—its ultimate actuality.

29. Theology is the science of that singular being whose essence is individualized by the mode of infinity.

30. Since the modes of being are its intrinsic determinations, everything is first in the First, everything is infinite in the Infinite.

31. Everything in the Infinite that is infinite like it, is really identical.

32. Being infinite, the First comprises in itself the infinity of possible quidditative beings. These beings are in it quidditatively distinct, but the reality of their quidditative distinction does not introduce into the First any distinction of actual existence. On the contrary, the quidditative entities formally distinct exist in God by the existence, identically the same in all, of the Infinite actually existing.

33. The infinite being, in which the quidditatively distinct entities are identically one and the same actual existent, is absolutely simple. As infinity entails simplicity, so finiteness entails composition.

34. The metaphysical univocity of being as such does not extend from the finite and composed being to the infinite and simple being. There is no real community, either of quidditative being or of the being of existence, between ''finite-being'' and ''infinite-being.''

35. In God, essence is absolutely first, and it is by relation to it that everything is located in the divinity.

36. The first divine motion is that by which the essence of God moves, so to speak, to know itself in the line of intellect. Being infinite, God is an infinite intellection of the infinity of quidditative beings eternally present to his intellect in the line of known objects.

37. These quidditative beings are called ''ideas.'' Each divine idea, being an object of a formally distinct act of intellection, possesses a distinct quidditative being, but none of the ideas has any distinct and proper existence. All, taken together, exist with the simple existence of the Infinite actually existing.

38. The act by which the infinite being knows the ideas depends in him only on the essence and the intellect knowing the infinity of possible quidditative entities with all their possible relations. This act, natural and necessary, precedes any movement of the will.

39. Being infinite in being, and consequently perfect, the First is will as he is intellect. The infinite being is the only infinite good, consequently also the only necessary object of the divine will. Since no finite object is bound to the infinite being by a necessary relation, every willing of a finite being is an act of gratuitous and free love in God.

40. The possibles depend only on the essence of God and on his intellect, but in freely choosing those among them that will be created, his will transforms them into creatables. A creatable is consequently an individualized quidditative entity about which the divine intellect knows that the divine will has chosen it to be created.

41. Since the divine will cannot choose except among the infinity of the objects of the divine intellect, the free choice of the creatables does not in any way affect the quidditative being of the possibles; it only causes in them creatability.

42. The initial contingence of every volition of God *ad extra* is the cause of all the contingence there is in the world. Just as in the beginning it was only by love that the radical contingence of finite being in relation to the infinite being could be overcome, so, too, in the end, it is only overcome by love. Theology, a practical science, teaches man the means that God himself has placed at his disposal to permit him to surmount it.

43. The execution of the divine volition *ad extra* is called creation. It is the work of the divine essence as power. The power of the infinite being is infinite; it is called omnipotence. Omnipotence is the power of bringing from nonbeing to being every finite being possible, immediately, and without the concurrence of any intervening secondary cause.

44. This mode of production, bound to the infinity of being, is the exclusive privilege of God; that is why only God can create.

45. Chosen by God among all the possible combinations of intelligible entities, the universe is intelligible in its essences and in all the relations which unite them; the freedom of the divine choice does not entail any irrationality.

46. The most perfect creatures are the angels; that is to say, subsistent intellectual forms.

47. The most perfect creature after the angel is man. The species "man" includes the beings composed of an intellective soul and a living organized body. The soul is the act and form of the body.

48. Though the soul is a constitutive part of the species "man," it does not itself constitute a species. Consequently it is not a subsistent intellect like an angel. It is man who is substance here, not the intellect alone.

49. In placing this composite being in the being of existence, the creative act places in it at the same stroke all the quidditative beings

entering into its composition. In the individual, which is the whole, the composing formalities preserve their distinct quidditative being, but they have in it no other being of existence than that of the whole of which they are parts; the being of existence of each part is its portion of the being of the whole.

50. The composition of finite beings therefore imitates in its own way the simplicity of the divine being; but, whereas in the infinite being the quidditative entities are identically the infinite existence, the quidditative entities in the finite only share in the existence of the whole of which they are parts; once more, the finite is by definition something composite.

51. Consequently, every existent possesses a double unity, one quidditative, the other of existence. Its quidditative unity includes all the distinct forms entering into its composition, from the form of corporeity to the intellective soul, without these formalities losing their distinction or enjoying distinct existences. Its unity of being of existence is that of the being of existence of the whole, which entails the simultaneous coexistence of all the distinct quidditative entities entering into its structure.

52. Since each being is what it is by its substantial form, it is by its form that it is such a being and that it is an actually existing being.

53. The unity of the human composite comes from one of the properties of the form, which is to include in unifying. Every higher form includes and unifies the lower forms. The plenary substantial form (including therein its highest actuality, which is its haecceity) includes and unites all the forms or quidditative entities necessary for the composition of the human being.

54. Since the individual alone exists, everything in an individual is individualized.

55. Haecceity escapes knowledge in the measure in which, because it is not a form, it escapes definition.

56. Although the intellective soul is only a part of the species ''man,'' it has the quiddity of an intellect; that is to say, of a being capable *de jure* of knowing everything that is.

57. The first, natural, and adequate object of such a being, consequently, is being taken in its total indetermination to the sensible as well as to the intelligible. It is capable, *de jure,* of an intelligible intuition as well as of abstraction beginning with the sensible.

58. *De facto,* the human intellect does not exercise any act of intuition of intelligible quiddities; in its present state, whatever the cause of this condition, man knows the intelligible only by the mode of abstraction.

59. The only intuitive intellection of man in his present state is that of the existent perceived by sense knowledge; this is a knowledge of the existent precisely as existent.

60. Abstractive knowledge is made possible by the fact that the sensible quiddity, although it is individualized in the object known, conserves of itself in the object its fundamental indetermination to individuality as well as to universality; consequently, it can be universalized by the intellect.

61. The act of intellection consists in the production, by the agent intellect, of an intelligible species corresponding to the common nature whose quidditative being is included in the sensible species; that intelligible species is received in the possible intellect.

62. The agent intellect is the total efficient cause of intellection; the known thing concurs there in the way of formal cause and determines its content.

63. Proceeding at one and the same time from two natures—that of the knowing intellect and of the object known—intellection is a natural operation and consequently a necessary one; as the intelligible always precedes intellection, whether in man or in God, its content depends necessarily on the object.

64. Every act that does not proceed from a nature, proceeds from a will. The act of a nature is determined by what it is; the act of a will is free.

65. Taken in the wide sense of the term, the will itself is a nature. As such, it necessarily desires the good in general. But it is free with regard to every particular good whose relation to the absolute Good is not of itself necessary. There is no necessary bond between the absolute and infinite good and any particular finite good.

66. Consequently, the will can always will or not will such finite objects, can will one rather than another of them, and can stop willing it after having willed. This fact is expressed by saying that it is free as regards the exercise of its acts and as regards their specification.

67. The liberty of the will consists in this, that nothing other than it is the total efficient cause of volition.

68. The intellect concurs in volition as a partial cause, in offering to the will objects of particular volitions; but since it is always in the power of the will either to refuse them or to prefer others to them, the sole efficient cause of volition remains the will.

69. Being the cause of the act of fruition, by which alone man will be able to enjoy his last end, which is God, the will is the noblest of the powers of the soul.

70. The primacy of nobility of the will over the intellect entails the primacy of nobility of charity over wisdom.

71. Free and responsible in his choices, man knows that he ought to choose in order to attain his last end, thanks to his knowledge of two laws—the natural law and the divine law.

72. The natural law contains the first principles of practical reason and the necessary consequences that flow from them. That law is necessary and cannot be changed, even by God, because it flows from the intellect alone, not from the will.

73. Since the knowledge of the natural law pertains to the practical intellect, the moral conscience that prescribes that law resides in the intellect.

74. The first principle of the natural law is that it is necessary to will good and avoid evil.

75. Since no particular good is bound to the absolute good by a necessary relation of means to end, God himself had to promulgate commandments to say what man ought to will or not to will in view of gaining his last end; these commandments constitute the divine law.

76. The commandments of God are contained in the Decalogue, which itself divides into two tables: the commandments referring to God and the commandments referring to the neighbor. The commandments referring to God, who is the absolute Good, are as necessary as he is; they therefore belong to the natural law and can neither be revoked nor suspended. The commandments referring to the neighbor, who is a particular good, belong only to positive law; consequently they are not necessary and could be either revoked by the legislator or suspended by him.

77. God alone, the supreme legislator, can revoke or suspend the commandments which he has promulgated.

78. Since all the volitions of God *ad extra* are free, the promulgation of the divine law is free, and its content could have been different

from what it is. But the entire divine knowledge being supremely reasonable, everything that the intellect of God offers to his will is necessarily reasonable. This is why, even if they are only of positive law, all the commandments of God are eminently reasonable and intimately harmonized with the natural law; hence they belong to the natural law in the wide sense of that expression.

NOTES AND DISCUSSION

CHRONICLE

The Southwestern Philosophical Conference held its annual meeting from December 27 to December 29 at Houston, Texas, Rice Institute being the host university. The program was not centered around a particular subject or subjects.

The Annual Meeting of the Eastern Division of the American Philosophical Association was scheduled for December 27-29, 1951, at Bryn Mawr College. On the afternoon of December 27, the program provided two symposia, "The Causal Theory of Meaning" and "The Conception of Law in Science," and several papers in the history of philosophy. On December 28, the morning symposia were "Is There A Priori Knowledge of Synthetic Statements?" and "Utility and Obligation"; the afternoon symposia were "The Principle of Individuation" and "What is Philosophy of History?" At the banquet in the evening, George Boas delivered the presidential address, "Philosophy and Ritualism." On December 29, three symposia were held, "The Experiential Element in Knowledge," "The Philosophical Postulates of Physics," and "Cultural Relativism." The last two of these were held in conjunction with the pertinent sections of the American Association for the Advancement of Science, and the second in conjunction also with the Philosophy of Science Association. Group meetings connected with this meeting were those of the Association for Realistic Philosophy, the Peirce Society, and the Association for Symbolic Logic.

The Fifth Convocation of the Natural Law Institute of the College of Law of the University of Notre Dame was held on December 14 and 15, 1951. The general theme concerned the universality of natural law in various traditions. The lecturers were Rabbi Solomon Freehof, Professor M. S. Sundaram, Dr. Khalifa Abdul Hakim, Dr. Hu Shih, and Dr. Daisetz T. Suzuki. The comments in the public press by a guest and former lecturer (Mr. George E. Sokolsky, columnist) left the unfortunate impression that the participants in this year's convocation were deeply confused about the roles of reason and revelation in the discovery and elaboration of the natural law.

THE GRADUATE SCHOOL of the University of Notre Dame presented a symposium on the life and thought of Don Luigi Sturzo on February 20, 1952. Commemorating the eightieth birthday of this scholar and statesman, members of the faculty of the university presented a series of papers on various aspects of his thought.

THE DOMINICAN HOUSE OF STUDIES AT RIVER FOREST has established the Albertus Magnus Lyceum for Physical Science. The purpose of this specialized institute is to develop a general theory of science and a general dialectic (or general method) of experimentation on the basis of an Aristotelian philosophy of nature. The institute is conducting a six weeks' summer school to which, it is hoped, a variety of theoretical scientists and researchers will come. The enrollment is to be limited. Detailed information can be secured from the Lyceum.

DURING 1951, THE PUBLISHING FIRM OF P. J. KENEDY AND SONS celebrated its one-hundred-and-twenty-fifth anniversary. This firm has in recent years expanded into the field of Catholic philosophy. THE MODERN SCHOOLMAN extends its congratulations and hopes that the firm will be increasingly active in publishing philosophical writings.

THE REVEREND WALTER FARRELL, O.P., died on November 3, 1951, at River Forest, Illinois, at the age of 49. Best known for his deservedly popular *Companion to the Summa,* Father Farrell was active as a writer and lecturer. His early death is a great loss to his Order and to the cause of Catholic philosophy.

IN COMMEMORATION OF THE CENTENARY of the birth of Desiré Cardinal Mercier, a congress was held at Louvain, October 10-12, 1951. The general theme of the congress was Thomism in contemporary philosophy. In addition to addresses by Msgr. Louis De Raeymaeker and M. René Le Senne, papers were given on epistemology and metaphysics, the philosophy of nature and psychology, moral philosophy, and the historical study of St. Thomas. The papers will be published.

THE CENTRO ITALIANO DI STUDI UMANISTICI E FILOSOFICI at Munich, during the months of June and July, 1951, brought in visiting professors from Rome, Madrid, Mailand, and Freiburg im Breisgau to speak on subjects that touched on humane culture and philosophy.

THE CONVENTION OF THE GÖRRES-GESELLSCHAFT took place in Munich, October 13 to 16, 1951. In the philosophical section, Professor Goetz Briefs of Georgetown spoke on the three stages of liberalism; Professor Hermann Muckermann, on the tasks of scientific anthropology in relation to the philosophical picture of man; Professor Albert Mitterer of Vienna, on results of the comparison of different pictures of the world; Professor Gustav Kafka of Würzburg on the need for a psychological section (which was subsequently established); and Professor Hermann Krings, on the concept of existence.

At the Berchmanskolleg (Pullach bei München), on October 10, 1951, Professor Leo Gabriel of Vienna spoke on the developing image of man.

BOOK REVIEWS

COSMOLOGY. By E. Finlay-Freundlich. "International Encyclopedia of Unified Science," Vol. I, No. 8. Chicago: Univ. of Chicago Press, 1951. Pp. 59. Paper, $1.25.
[*Article-review above, pp. 183-96*]

PFLICHT UND NEIGUNG. DIE GRUNDLAGEN DER SITTLICHKEIT. By Hans Reiner. Meisenheim am Glan: Westkulturverlag A. Hain, 1951. Pp. xii + 316. Cloth, DM 19.50; paper, DM 17.

Dr. Reiner received his Ph.D. under Husserl; he has taught at several universities and now teaches ethics at Freiburg im Breisgau. His first work (1927) dealt with the problem of freedom and the present work appears as the culmination of a series of studies concerned with problems of ethics. It is not, one gathers, the last work; it endeavors only to lay foundations.

Since Scheler's *Der Formalismus in der Ethik* (1913), German moral philosophy has become critical of Kant's approach; Hartmann's voluminous *Ethics* is only one of several examples of this trend. Dr. Reiner's argument is based chiefly on the alternative indicated in the title. Kant, as we know, held that an act is moral only when motivated by duty alone; "inclination" has nothing to do with the moral value of intention or conduct. This point had been the one from which Schiller started his criticism of Kant. Curiously enough, both Kant and Schiller apparently were not aware of the profound differences between their views. The author points out the differences and devotes the first eighty-eight pages to their clarification and a penetrating analysis of Kant's doctrine. He disagrees with Kant because of the wrong demonstration of the true idea that the moral good is a "good in itself," because of the deduction of the content of the moral law by means of the concept of law from the notion of duty, and because of the relation, in Kant, of morality and freedom. Having thus cleared the terrain, the author proceeds to discuss the method of ethic inquiry.

Dr. Reiner stresses the importance of experience and induction in the study of ethics. The facts of moral understanding, conscience, sense of duty, and so on, must be ascertained first. The knowledge the philosopher has of his own conscience is the starting point for all further inquiry. But the philosopher is also a child of his times and his people. The author believes in rather deep-going racial differences which, as it were, color the moral vision of peoples, although the basic moral truths and principles are recognizable to all men. Of this he attempts to furnish empirical proof in the last part, in about fifty-odd pages, comparing the consciousness of moral ''oughtness'' in the Germans, Greeks, Romans, and Jews of the Old Testament. The factual basis is rather small. The author himself realizes that more evidence is needed. It would seem, particularly, that much more attention should be paid to general cultural and historical conditions; it would not be difficult to show that similar conditions elicit similar views also in the field of morals; but this demonstration would be as insufficient as the author's unless much more data were collected.

The combination of empirical and rational analysis is characteristic of the school of phenomenology. The present work is suitable to make one realize that this method, when expertly handled, may prove very useful and yield valuable results.

Conscience manifests itself in four forms, as warning conscience, admonishing conscience, good conscience, and bad conscience. It is ''located'' in the fundamental layers (*Untergrund*) out of which the ego arises. The ego or its ''center'' is active in all acts of will when man is conscious of his responsibility, whereas the deeper layers send up into consciousness—so to speak—data in face of which the ego is receptive rather than active. Many pages are devoted to a detailed and searching analysis of the various orectic phenomena, to summarize which is hardly feasible. One is grateful to the author not only for many illuminating remarks, but also for his emphasis on the objectivity of values, which, on the phenomenal level, parallel the objects of perception, but can be shown to possess ''rationally founded objectivity, as it exists for instance in mathematics and logic.'' All values carry with them the note of ''oughtness,'' that they should be real. Merely subjective values are such as to render renunciation possible, whereas the demand of objective values is independent of subjective idiosyncrasies, and their demands are of an objective nature.

The author sets his conception over against those of Heidegger and St. Thomas. In regard to the latter, it would seem that there is a certain misinterpretation. The author—referring to the *Summa Theologiae,* I. 5—affirms that ''the concept of *bonum* designates a being *only* insofar as it is an object of striving (*appetibile*)." Therefore, Dr. Reiner claims, the good is understood here exclusively in the sense of "a good *for*." It seems questionable whether this interpretation is in accord with the ideas of St. Thomas. It may be that Dr. Reiner, as many others before him, read into the proposition a sense which is modern rather than Thomistic. His understanding is, apparently, that the *bonitas entis* is founded on the *appetibilitas.* But one might argue, and more convincingly, that the relation is the opposite; namely, that a being becomes *appetibile quia bonum.* The proposition *bonum est quod omme ens appetit* defines appetition rather than the good. In truth, there seems to be less difference between the traditional view and that of Dr. Reiner than he assumes.

The analysis of the phenomena of moral consciousness, conscience, and conduct is summarized in the statement that morality is founded on an intuition (called by the author, in accord with Scheler and Hartmann, a *Wertgefühl*) of values, on reason, and on freedom. There is "practical reason," which is not "pure" but related by its very nature to values and guided by them.

This brief report renders but imperfectly the ideas of the book. A final judgment will have to be based on a careful study and critical evaluation. This will be a rewarding task. It will be a difficult one, in view of the complexity of the matter, but rendered somewhat easier because Dr. Reiner, unlike many other contemporary authors, writes a simple and clear style.

RUDOLPH ALLERS

Georgetown University

DAS UNPERSÖNLICHE DENKEN. By Paul Feldkeller. Berlin: Walter de Gruyter, 1949. Pp. 416. DM 12.

This book is not easy to read and less easy to report on. It is written in a peculiar style, particularly characterized by the coinage of many terms which cannot well be rendered in English. This review has to be satisfied with briefly indicating what seems to be the main idea. Not as if the study of this book were unrewarding; there are many interesting passages, penetrating analyses of problems and situations, and astute remarks on questions of psychology or sociology.

The main idea may be stated thus. All rational or scientific endeavors of modern man have been, as it were, depersonalized. They follow an "unpersonal" pattern. The individual thinker or scholar is but the one who happens to work on a problem, which would have been solved anyhow—if not by him, then by another. What the author calls the *Umselle* (perhaps to be explained as "surrounding mentality" or as something like Whitehead's idea of an "intellectual climate") proves more powerful than all personal, individualized thinking. Everyone thinks in the terms of the prevailing "ideology," the ideology, for example, dictated by dialectic materialism in Russia and determined by the various local preferences and attitudes in all other countries. The life of whole peoples is formed not by the constructive ideas of outstanding individuals, but by the unpersonal, unreflected, unanalyzed mentality in which all share. Opinion and conviction have become "anonymous." Only the psychologist and the philosopher realize this state of affairs, but they lack the courage to assert their personal ideas; they shun the effort of self-criticism.

The all-pervading depersonalization of thinking abolishes true communication from one person to another. Everyone moves in the same neutral, common, unpersonal atmosphere.

The content or even the division of the book cannot be reported because the titles of chapters and sections are couched in the author's new terminology.

It is a serious work of a thinker certainly not without originality or deep insight. One may consider it as a symptom of our times, of the consciousness that we live in an age of crisis not only in economics and politics but of crisis for man himself. In previous times, so the author says, it was religion which enabled man to be or to remain a person; this approach, however, he considers as "inadequate" in the present times. One wonders whether he has not fallen himself prey to the "unpersonal" way of thinking and is more under the influence of a prevailing "ideology" than he realizes.

RUDOLF ALLERS

Georgetown University

DALL' ESISTENZIALISMO ALLA FILOSOFIA DELLA SENSIBILITÀ. By Oscar di Giamberardino. Padova: Cedam (Ant. Milani), 1951. Pp. 240. Paper, 1200 lire.

Too long, so the author feels, has philosophy dwelt in the dimly lit halls of German idealism. It is necessary that human thought should leave this "Gothic cathedral" and be preoccupied with reality, man's and the world's. Existentialism is a reaction to idealistic philosophy, but an imperfect one. This new philosophy has become conscious of man's reality, but has not comprised him in his totality because it isolates and thus remains fragmentary. Only by means of a comprehensive integration of man and his world, the ego and the nonego, and by accomplishing this integration in faith, can man find a mode of existing. The basic anxiety of human solitude can never be completely overcome. Love does not abolish solitude, but is an effort towards abolishing it. Ultimately it is only in God that man finds his rest.

The first sixty-four pages deal with the ego, the nonego, and God. The following sections attempt to build up a philosophy of reality on this basis. It is, perhaps, characteristic of the author's approach that the longest part is that on problems of aesthetics. Far from rejecting all innovations, the author still holds that many forms of modern art are, in fact, aberrations. What is amiss with them is the same fundamental defect which is found everywhere in modern civilization—the lack of unity, of integration, the fragmentary aspect instead of one comprising the whole. Ethics, sociology, and education are discussed in a similar manner.

It is a serious endeavor to find a new orientation in the midst of the chaotic confusion of the present world. It is a theocentric and Catholic view that is proposed. To line up the ideas of the author with those of traditional philosophy, however, is not easy. Bibliographical references are scarce; there is no index.

RUDOLPH ALLERS

Georgetown University

DENKFORMEN. By Hans Leisegang. Berlin: Walter de Gruyter & Co., 1951. Pp. viii + 457. DM 30.

This is the revised edition of a work first published in 1928. Its general problem is that of the understanding of another's ideas, or rather of the background from which these ideas arise, or the spirit (*Geist*) which pervades them. This problem occurs, of course, to every student of other philosophical systems, other civilizations, of art or poetry—in one word, of everything Hegel comprised under the name of "objective spirit." To understand any such thing or context of things, one has to be able to look at them, as it were, from within and discover the fundamental categories and principles on which their structure rests. Only when such an understanding has been achieved may one ask further and try to "explain" why a certain age or a certain man produced these and not other ideas, or why there are so many different approaches to the same problems. The author, professor of philosophy at the Freie Universität of Berlin, limits his inquiry to the mode of thinking and the related conception of the world (*Weltanschauung*), leaving aside the questions of emotional responses or of the general attitude by which a man or an age may react to experience (*Welterleben*). Nor is it his intention to criticize and evaluate the different types of philosophy he considers. His approach is strictly descriptive and analytic.

It has been argued that all inquiry about the possibility of various types of logic presupposes a logic prescribing the rules of such inquiry. This is, however, true only if logical thinking is viewed independently of its contents, which have each logical structures of their own; that is, a "formal context of real or ideal objects, states of affairs, processes and events . . . which may be symbolized by an intuitable system of signs." Thus one arrives at a *Denkmodell* in which the form of thinking peculiar to an author or a philosophy becomes visible.

After having proposed some valuable rules on how to proceed with the analysis of a system and with the construction of the "model," Professor Leisegang applies his method to the "circle of ideas" as represented by Heraclitus, St. Paul, and Goethe; the "circle of circles" as found in Hegel and some of his predecessors; and the "pyramid of concepts" which is the form characteristic of Platonism, Aristotelianism, and medieval Scholasticism, as well as of Kant and others. With the latter, another form, too, plays a decisive role, the way of thinking developed by Euclid and found in mathematics in general.

The analysis and discussion of various passages from many philosophers, chosen because they reveal their way of thinking with particular clarity, proves very interesting and provocative. The reader will learn to look at many a system differently; and ideas which may have been obscure and, perhaps, may have appeared as almost meaningless become clearer, so that the core of a philosophical system, the ultimate suppositions on which it rests, stand out in a manner more definite than usual.

Two further chapters deal with antinomies and with "circular development and rectilinear progress." The latter deals with the various conceptions of the philosophy of history, from the mythological and theological stage in early Greece, through the Stoic idea of "eternal recurrence," through Plato, Aristotle, and St. Augustine to medieval and, finally, modern views. This survey furnishes an opportunity to show the usefulness of the basic idea of *Denkformen* for the study of the history of philosophy.

This point is taken up expressly in the concluding chapter. Only within one and the same form of thinking one discovers a rectilinear progress, so that the successor builds upon and develops the ideas of his predecessors. The various groups and schools of thinkers arise because, suddenly, what was previously considered ''unthinkable'' becomes thinkable to some mind. At the bottom of every original philosophy lies an intuition of reality which determines the metaphysics peculiar to a system, and this underlying metaphysics brings forth a corresponding logic. This is not to say that the various systems which appeared in the history of human thought are wholly independent of each other, or that one cannot discover a more general order. The author recognizes three main types which he calls materialism, idealism, and ''mysticism and panvitalism.''

Much could be said of this work both by way of praise and criticism. But this kind of work requires a more detailed discussion than a review can contain. It must suffice here that the great interest of the author's approach should be stressed and his work recommended to serious consideration. Its study may enable us to become a little more—so to speak—elastic in our dealing with philosophies other than that we profess. It may make us realize that there are viewpoints deserving attention which, perhaps, are not taken account of in our own system. In any case, pondering the ideas of the author will prove rewarding.

RUDOLF ALLERS

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LEÇONS SUR L'EXISTENTIALISME ET SES FORMES PRINCIPALES. By Roger Verneaux. Paris, Téqui. Pp. 227. Paper, 600 fr.

''EXISTENTIALISME.'' REVUE DE PHILOSOPHIE, 1946. By F. Cayré, M. De Corte, D. Dubarle, R. Jolivet, G. Thibon, R. Verneaux. 2d ed.; Paris, Téqui, 1947. Pp. 199. Paper, 500 fr.

The former of these works is not of a kind to put order into the literary chaos which the word ''existentialism'' has produced in the past ten years. The author presents the substance of five *public* conferences given during 1948 at the Institut Catholique of Paris; but in fact he takes care not to rise above the level of journalism.

The subject deserved a more serious treatment. The book is overlong because it is filled (even on those pages where one would have a right to expect some solidity) with commonplaces like the following:

> This is the reason why I consider myself bound to proceed now to an examination of existentialism. On this matter I should like to make two remarks. First, it is necessary to have understood a doctrine before embarking on the least criticism; otherwise, anything one may have to say on the subject will be valueless and so much time wasted. Secondly, it is at least desirable, if not necessary in simple intellectual honesty, to expound what one has understood, what one considers to be the essentials of the doctrine, since upon that the criticism bears, whether expressly said or not. This is a principle too often forgotten in the contemporary philosophical world: a caricature is made of the adversary, and a cheap and inglorious victory gained by carving up a shade (p. 163).

If this is the tone which philosophy must take in France, even in Catholic circles, in order to be listened to or read, the exodus of French intellectuals is not to be wondered at.

The second work, however, takes us straight to the heart of the subject—especially Cayré, ''La philosophie de saint Augustin et l'existentialisme''; Descoqs, ''L'athéisme de J.-P. Sartre''; Dubarle, ''L'ontologie phénoménologique de J.-P. Sartre''; Jolivet, ''L'existentialisme de Kierkegaard''—because these authors have directly understood the ABC of existentialism. For one cannot *speak* of existentialism from the *inside,* seeing that the first demand of language is to say *what* things are, and existentialism purports to be the denial of every *essence.* That is why the leaders, Sartre and Camus, ''qui font des livres,'' sharply deny that they are existentialists. Your true existentialist could neither speak nor write, for by that very fact he would abandon the existentialist attitude.

The existentialist attitude, then, cannot be clarified—and explained—except from the *outside,* and this only in the perspective of the history of Christian theology and in bringing to bear on the fact of being the light of the Thomist ontology of *esse.* The articles mentioned above do this clearly and profoundly. What is properly existentialist in existentialism cannot be comprehended except in function of a philosophy of being. In rejecting every essence, existentialism avows and proclaims that being is ''absurd''—but then, with what hope does the existentialist speak? The contradiction is clearly set before the reader in the present work.

The former of these two books is addressed to those for whom existentialism consists in letting one's beard grow, in wandering around Montmartre, and in chattering about Jean-Paul Sartre. The latter is written for those who want to understand what existentialism is and who are looking for a book that will tell them this clearly and with penetration.

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THE ROLE OF THE "SENSUS COMMUNIS" IN THE PSYCHOLOGY OF ST. THOMAS AQUINAS. By Edmund Joseph Ryan. Cartagena, Ohio: Messenger Press, 1951.

In the breadth of its scope, Dr. Ryan's thesis might well serve as a model for similar theses in Scholastic psychology. First the historical sources of St. Thomas's doctrine in Aristotle, Avicenna, Averroes, and St. Albert the Great are explored. There follows a synthesis of St. Thomas's own doctrine. Finally the data of modern psychology and pathology are carefully scanned for possible relevance to this doctrine of St. Thomas on the *sensus communis.*

From his final synthesis, it is obvious that St. Thomas does not merely copy Aristotle or his other sources. He is in closest agreement with Avicenna, with whom he often sides against Aristotle. Yet to Aristotle he owes very much. For if the Stagirite was not the first to draw attention to the functions which we now predicate of the *sensus communis,* he certainly was the first to systematize and crystallize them and assign them to the sense level. Aristotle regarded the internal senses as direct functions of the sensitive soul. Avicenna limited the number of internal senses and recognized their faculty status. It is with Avicenna, and not with Aristotle, that St. Thomas took his stand on these points. Though he gives added reasons for it, St. Thomas agrees with Aristotle that the external senses are not aware of their own acts; that the *sensus communis* is necessary for this.

At any rate, out of his comparative study, there emerges the synthesis of St. Thomas on the role of the *sensus communis.* First of all, it is one of four interior senses: the *sensus communis,* the imagination, the estimative sense, and finally sense memory. The first of these is a pivotal sense, distinct not only from the other interior senses but from the external senses as well. Yet it is most vital for the exploitation of the data of the latter. The *sensus communis* is very much like some international cartel, or a holding company, with vast indirect mastery of (sensory) resources and powerful relations with the other internal senses, as these become operative in perception.

Its activity is even necessary, as a preliminary, for the functioning of intellect, which demands a sensory unification or assembly for its task of interpretation.

In St. Thomas's psychology, the external senses are instruments of the *sensus communis.* For though they can ''perceive'' and discriminate within the bounds of their proper object, they are constitutionally unfitted, as corporeal faculties, for reflection and hence for awareness of their own act. Only vicariously, by virtue of the *sensus communis,* do they become aware of their act—or rather the ego does. The *sensus communis* is, like any other sense, unaware of its act. Yet, of course, it knows the proper objects of each sense and the common sensibles. Dr. Ryan is at pains to explain how, according to St. Thomas, this is effected. Thus he writes: ''While the external sense receives a species of an object representative of the object only, the common sense receives from the external sense a species representative of both the sensible object and the object as known by the sense in act, insofar as the external sense acts'' (pp. 138-39). And since the species representing the act of the external sense is not really distinct from the species representing the object as perceived by the external sense, it follows that the *sensus communis* knows simultaneously both the object of sense quality and the act of sight. Indirectly and mediately, therefore, it also knows the sensible object—for instance, the colored object.

Once it is in possession of the data of the different sense modalities, the *sensus communis* capitalizes them. And this it does by differentiating the objects of the different senses and then assembling them or attributing them to the object or situation to which they belong. Modern research on perception has revealed colossal contributions of past experience in the synthesis that we call perception. The intellect is usually mightily enlisted in this enterprise. On the sense level, the *sensus communis* directly and properly is only responsible for the assembly or synthesis of presentations, though as the provider for imagination and memory, as the very center of sense activity, it cannot be deprived of a share of the ultimate synthesis of presentation and representation, which perception most frequently is. St. Thomas calls it the root and source for the other internal senses. Its organ is the brain. Here St. Thomas espoused the view of Avicenna, rather than of Aristotle, who localized it in the heart.

Obviously, therefore, the *sensus communis* is pivotal in St. Thomas's psychology for an understanding of all sense life. Its functions and achievements are manifold. The external senses are its instruments and provide it with the data, though only via the *sensus communis* do we become aware of the acts of the senses. But thereupon two important events transpire: the *sensus communis* differentiates and synthesizes; and, because it is the root and source of the imagination and memory, its synthesis can be perfected by the activity of the latter faculties.

After presenting the synthesis of St. Thomas, Dr. Ryan turns to the data of modern psychology and pathology to determine whether they can throw further light on the role thus portrayed. Non-Scholastic psychologists never, of course, mention the name of the *sensus communis;* but I doubt if anyone would, or could, deny the essential function of sensory synthesis of the data of presentation. This sensory unification is the cardinal tenet of the Gestaltists. They have indeed attempted at times to deny the contribution of past experience to the perfected synthesis and tend to eschew the ulterior help of intellect. But the essential function of the synthesis or unification of the sensory data they have proved by much valuable experimentation. Certainly some of the data gathered by Dom Moore from pathology points in the same direction. However, we must point out that for the Gestaltists and many other psychologists the sensory synthesis, which we attribute to the *sensus communis* as a faculty, is charged to the organizational powers of the brain, in a neurophysiological sense alone. However, only the overemphasis of the role of neurophysiology would bother St. Thomas.

But can we assert agreement, even among all Catholic psychologists, on the point of sensory unawareness? According to St. Thomas, only in virtue of the activity of the *sensus communis* is there awareness of the acts of the external senses. This position he adopted because of the implications of the corporeal nature of the sensory faculties. They are accordingly incapable of reflection. For the same logical reason, the *sensus communis* is unaware of its own act.

The senses are said to perceive and even to discriminate objective qualities, but not to know their own act. These two aspects of sense knowledge are indeed mentally distinguishable. But can they be distinguished in fact? Certainly, for me, serious questions loom up here. If the act of external sensation transpires without benefit of self-awareness, how could another faculty, distinct from it, report such a participation of consciousness? Most experimentalists speak of vestibular stimulation rather than sensation, precisely because there is no report to consciousness.[1] But they at least tacitly assume that there is awareness in other sensations, particularly in proprioceptive activity. It may well be too much of a strain on the reliability of introspection to maintain that such self-awareness as exists in external sensation must be ascribed to the ego through the activity of the senses in question. But I do not see how self-awareness could be implemented vicariously by another faculty, if the original act were bereft of it—and that particularly where, as in Thomistic doctrine, the whole act, or activity, consists in the elaboration and exploitation of the *species impressa.*

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[1] S. S. Stevens (ed.), *Handbook of Experimental Psychology* (New York: J. Wiley & Co., 1951), p. 1208.

In following up this objection or difficulty, I encounter St. Thomas's very good reason for denying such self-awareness on the grounds that it implies reflection, which must be denied to a corporeal faculty. It is an insuperable difficulty, if indeed there is no concomitant awareness. This latter would imply not a reflexive awareness of the self involved in external sensation, but at least a vague awareness of the self in and during its activity as the subject of my act. To me that seems to meet the requirements of the case. There may be difficulties in this tentative suggestion which I cannot appreciate. But perhaps it will provoke further thought on the problem.

May I point out that there are some rather awkward phrasings and constructions in this dissertation? Admittedly some are due to too literal renderings of the Latin. But it is regrettable that they should have to detract from the excellence of Father Ryan's dissertation.

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DICCIONARIO DE FILOSOFÍA. By José Ferrater Mora. 3d ed.; Buenos Aires: Editorial Sudamericana, 1951. Pp. 1047. 19x26.5 cm. $150 arg.

PROSLOGION. By Saint Anselm. Latin text, Spanish translation by Beatriz Maas; introduction by Guillermo Blanco. La Plata: Universidad Nacional, 1950. Pp. 137.

ENSAYOS METAFISICOS. By Juan Adolfo Vazquez. Tucumán, Argentine: Instituto de Filosofia, Universidad Nacional, 1951. Pp. 101. Paper, 8 pesos.

The third edition of Professor Mora's *Diccionario* is to a large extent a new work, being almost twice the size of the second edition. Authors, movements, and ideas are arranged in a single alphabetical listing. There are bibliographies attached to each article, which, though necessarily brief, are for the most part surprisingly complete. There is an appendix of complementary information on the articles (pp. 1019-39) and on the bibliographies (pp. 1040-47). The author is particularly interested in the problems of modern philosophy; for example, symbolic logic and philosophy of science. Consequently his treatment of other movements is sometimes a little unsympathetic. The *Diccionario* is more complete in the case of Spanish works than comparable works in English, French, or German.

The edition of the *Proslogion* of St. Anselm is the first of a projected series of texts to be published by the Instituto de Filosofía. The book is well printed; text and translation are on facing pages; there is a competent, even if short (fourteen-page), introduction. This series promises to be of great value to students; that value would be enhanced by a selective bibliography.

Ensayos Metafisicos, a slight volume of semipopular essays on metaphysics, testifies to the continuance of real philosophical thinking at this well-known center. The essays are characterized by an advertence to the actual problems of contemporary philosophy and—what is more unusual in authors of a Spanish American background—by an acquaintance with some important British and American writers.

The five essays deal with the following topics: the return to ontology, knowledge and reality, scientific knowledge and human existence, reflections on a metaphysics of death, and the West, time, and eternity. The book could be recommended as a pleasant way to become acquainted with philosophical Spanish or as an introduction to the thought of one of the prominent Spanish American philosophers.

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ESSAY ON HUMAN LOVE. By Jean Guitton. Translated by Melville Chaning-Pearce, with a Foreword by the Earl of Halifax. New York: Philosophical Lib., 1951. Pp. xi + 243. $4.50.

M. Guitton rightly entitles this work an essay. It is not a formal, philosophical analysis of the nature of human (marital) love, but a study which does

> for human love what the Georgics had done for the labours of the soil, showing how, in different phases of history, the idea took shape, how human thought approaches it; in what way it emerges and matures; the corruption that dogs it; the place of love in the architecture of the universe and the design of creation, its future in the human odyssey, its

> role in the ascent of the spirit; what, in the end, is the relation between all loves; if it is true that there is only one love, and, if so, how the share of the spirit and of the senses in this unity is to be conceived (p. 7).

The essay is divided into three noncorrelative parts, entitled "Mystery," "Development," and "Significance." In the first part the author traces the attitudes of different cultures toward love and finds three dominant strains, "the Platonic theme, the theme of Solomon and the theme of Tristan." The psychological development of love in the individual human being (parallel with physiological) from the initiation to sexuality and love, through the flowering of love into oblation, is analyzed in the second part. The two topics in the third part are the significance of sex and love for the individual personality and for the race, and some conjectures about the future development of human love.

Inherent in all three dominant strains is a sense of conflict. This conflict religion isolates and emphasizes as the moral conflict between flesh and spirit. Radicated in the duality of nature and released as an anarchic force by the fall of man, this conflict is resolved by the very element which seems to aggravate it: religion—and more specifically, grace. Religion has the additional task of mitigating the several aberrations toward solipsism inherent in each of the manifestations of love.

Thus rightly oriented, says Guitton, love consists in self-giving, self-oblation, in mutuality.

> The gift which is made includes the very being of the giver in its indivisible totality; it is the gift not so much of what *one has* as of what *one is.* This love, I say, contains all that is less in our being: life, sustenance, possessions, cares, abode, time, death, memory. And the gift received contains all these. Thus one can see that in love the saying of St. John of the Cross is exemplified: "I have determined to lose, and I have gained everything" (pp. 80-81).

In an essay published some years ago in *Dieu Vivant,* Gaston Fessard characterized the dichotomy of male and female as one of the four major categories within the human race and suggested that the purposive nature of this (as of the other categories) is the historical perfection of man. M. Guitton develops his analysis of love along similar lines in the third part of his *Essay.* The analysis is difficult to summarize since it is not systematic, but some elements of it can, at least, be indicated.

The first element of perfective finality does not involve the duality of sex, but of nature. Since sex is always subject to rational, moral direction, there exists within man's nature a potentially rich perfective conflict. Secondly, in the duality of sex are discovered both the contrary and the complement of what each is separately. This duality, moreover, effects not only self-knowledge, but mutual perfection. Thirdly, there are the interlocked axes whereby love is at once propagation and exaltation; it has both ''a social and a quasi-mystical'' function. Finally, the very limitations of Eros, whose two elements, erotic love and generative love, can be mutually self-defeating, suggest the ultimate necessity of disinterested love, Agape, not only for its own sake, but for the fulfillments of Eros.

M. Guitton divides the human history of love into three periods: first, up to the opening of the Christian era; second, to the present time; third, the future. His reason for asserting that a third period is opening today is that only in our time are the increased knowledge and liberty which have characterized modern times being applied to the realm of love. Involved in this new application is man's ambition to dominate the phenomenon of love by mind and science while, at the same time, freeing it from shackling inhibitions. Obviously such a tendency is morally ambivalent; and the principle of autonomy, so right in itself, is potentially self-destructive.

But it is equally capable of self-perfection, and Guitton's essay concludes with a perspective of hope not unjustified by the rich insights of his analysis and the intuitions it evokes.

> What we do know is that human love has not completed its career. By its very nature it renews itself, meeting unknown problems with ever-new responses, never believing in cessation or catastrophe. Thus, in each world crisis, it assumes the grace of dawn and of a new venture upon the way of peace and promise. The further humanity fares, the more wide is the way; the more therefore, is its cause for hope. And love and hope are akin.

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LIBERTÉ ET VALEUR. By Jacques Delesalle. Publications Universitaires de Louvain, 1950. Pp. 239.

This work is the fifth number in a series of philosophical essays published by the University of Louvain. It is an interesting presentation of metaphysical and ethical concepts which range from Plato to contemporary existentialist doctrine as represented by Heidegger and Sartre. Delesalle, in the course of his exposition, relates the essential contributions of Plato, Descartes, Spinoza, Plotinus, Kant, Bergson, and the modern existentialists to the concepts of liberty and the nature of values.

Spinoza did not know if his philosophy was the supreme philosophy; but he did know that it was true. Delesalle argues that Spinoza was correct in the sense that all philosophies participate in truth, but not in the sense that any one philosophy is the whole truth; for philosophy is only an approximation of being. Indeed, Delesalle believes that philosophy is more the manner in which to approach reality, rather than the reality itself. It is not that the approach is unimportant, for an inadequate method precludes the possibility of ever attaining the real. Delesalle accepts Bergson's thesis that the philosopher must use intuition.

William S. Kraemer

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BIBLIOGRAPHY OF CURRENT PHILOSOPHICAL WORKS

PUBLISHED IN NORTH AMERICA

For the purposes of this bibliography, "philosophy" will be understood in a very broad sense. It will include works in other fields—such as sociology, aesthetics, and politics—that involve philosophical principles and problems.

"Current" books will be understood to include new books, revised editions, and reprints if the previous printing had been out of stock for a notable period of time, or if there is a notable difference in price, format and the like.

The procedure is as follows:

1. *Books announced for publication will be listed in the issue which next appears after the announcement is received.*
2. *Books actually published will be listed in the subsequent issue, even though they were already listed in accordance with No. 1 above.*
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BAKER, ERNEST. *Social Contract: Essays by Locke, Hume and Rousseau.* "World's Classics," No. 511; New York: Oxford Univ. Press, 1951. Pp. 503. $1.25.

BERNIER, ROBERT, S.J. *L'autorité politique internationale et la souveraineté des états.* Montréal: Institut Social Populaire, 1951. $2.75.

BERTOCCI, PETER ANTHONY. *Introduction to the Philosophy of Religion.* New York: Prentice-Hall. Pp. 580. $6.35; text ed., $4.75.

BOKSER, RABBI BEN ZION. *The Wisdom of the Talmud.* New York: Philosophical Lib., 1951. Pp. xx + 180. $3.75.

Though the Talmud constitutes a source of ethical, religious, and philosophical doctrines that have had a greater or lesser influence on Western thought and culture, the anecdotal method and the unorganized form of these writings (at least in the eyes of those trained in a different culture) make them relatively inaccessible. Hence this book might be useful in a course in the philosophy of religion.

BROWN, LENNA WILLIAMSON. *Analysis of Reality.* Lawrence, Kansas: Allen Press, 1951. Pp. 51. $2.00.

This is a brief outline of an evolutionistic philosophy of intelligence. According to the author, the infinite reality has the two characteristics of extension and intelligence; and finite reality evolves by a progressive organization of the limited categories of extension, duration, and so forth. The spiritual level is reached with the evolution of the free personality. It is a sincere book, but confusing if not confused.

BRYAR, WILLIAM. *St. Thomas and the Existence of God. Three Interpretations.* Chicago: Henry Regnery Co., 1951. Pp. xxv + 252. $5.00.

This is a study, according to the method and systems of modern logic, of the "first way," or proof from motion, used by St. Thomas.

The author follows the technique of first stating his definitions and rules in summary form and then developing the section in detail and applying it to the text of St. Thomas. In doing this, he ordinarily avoids symbolic notation, using instead the formal language developed by the practitioners of "philosophical analysis." The conclusion reached is that the first way proceeds simultaneously on three lines of meaning (which differ among themselves in abstractness and formality of expression). There are four appendices: on the *Contra Gentiles*, on Averroes, on the symbolic presentations of the first way as given by Salamucha and Bochenski, and some material relating to the introduction. There is a full bibliography and an index.

BUTCHER, SAMUEL HENRY. *Aristotle's Theory of Poetry and Fine Art.* New York: Dover Pubns., 1951. Pp. 497. $4.50.

CHUDOBA, BOHDAN. *The Meaning of Civilization.* New York: P. J. Kenedy & Sons, 1951. Pp. xi + 314. $4.00.

It is a task calling for broad erudition and bold imaginative sweep to encompass both the theory of history and the significant elements or aspects in the history of man. According to the author, history is not science, but rather art—and particularly drama. And this is true, because each individual human life is a drama. The defense of this conception of history against the ideas of progress and evolutionism constitutes the first part of this book. The second part deals with the ancient background of Christian civilization and aims at pointing out the values we have inherited. Particularly valuable is the author's insistence upon the primacy of liturgy over myth in ancient religion. The third and largest part of the book takes up these aspects of Christian culture: the Church, the Church and art, Christianity and education, physical science and progress in the control over nature, and law and international relations.

Two philosophical ideas are prominent in the background of the book: first, that only a "conscious will" can be an efficient cause (nonliving things can only be material conditions [which the author himself indicates on page 8 is his translation of *causa materialis*]); second, that faith necessarily precedes reason. The author gives the suggestion to the reader that the approach of St. Anselm is the only really Christian one. A realization of the importance of faith, however, should not lead anyone to attempt to substitute it for rational knowledge.

COLLINS, JAMES D. *The Existentialists. A Critical Study.* Chicago: Henry Regnery Co. In preparation.

CONANT, JAMES BRYANT. *On Understanding Science.* New York: New American Lib. of World Lit., 1951. Pp. 159. Paper, 35c

CONZE, EDWARD. *Buddhism.* Preface by Arthur Waley. New York: Philosophical Lib., 1951. Pp. 212 + tables and index. $6.00.

This is an excellent book, by a convinced Buddhist, on the doctrines of Buddhism, as well as its history and development. It is one of the most readable introductions to a highly complex section of human thought that ordinarily is veiled in an esoteric vocabulary.

DAVIS, HENRY. *Artificial Human Fecundation.* New York: Sheed & Ward, 1951. Pp. 20. 35c

DEMAN, THOMAS, O.P. *Aux origines de la théologie morale.* "Conférence Albert le Grand," 1951; Montréal: Institut d'études médiévales; Paris: Vrin, 1951. Pp. 115.

The history of ethics and moral theology has been relatively neglected. The author tells us that a definitive history cannot yet be written; his purpose is rather to give a sketch of the directions that moral theology took in its development and to offer suggestions for further study. The author ranges confidently and with evident mastery over the period from the beginnings of Christian thought to St. Thomas. It is to be hoped that this work will serve as a stimulus to further and more detailed efforts in the same area.

DODDS, ERIC ROBERTSON. *The Greeks and the Irrational.* "Sather Classical Lectures," Vol. 25; Berkeley: Univ. of California Press. $5.00.

DUCASSE, CURT JOHN. *Nature, Mind, and Death.* La Salle, Ill.: Open Court Pub. Co. Pp. 533. $4.50.

Ethical Standards in Government. Report of a Subcommittee of the Committee on Labor and Public Welfare. Washington: Government Printing Office, 1951. Pp. iii + 89. Paper, 25¢

This is a balanced and intelligent handling of a topic that is currently receiving the "scare" treatment in the daily press. It is highly recommended as supplementary reading for courses in social ethics and political theory, and should help give the students a feeling that they are dealing in these courses with real, contemporary problems. The report is also recommended for reading by thoughtful citizens.

FEIBLEMAN, JAMES K. *Ontology.* Baltimore: Johns Hopkins Press, 1951. Pp. xix + 807. $9.75.

This book is as comprehensive as its impressive size would indicate. It is divided into three parts—an introduction, the system of ontology, and demonstrations and applications.

The first part contains some of the best and some of the least satisfactory matter in the book. The historical introduction is confusing and very often inaccurate. Nor can the mistakes in it be shrugged off as inconsequential factual error; like all philosophers, the author takes a stand in a concrete historical situation which provides him with points of reference. On the other hand, the justification of ontology against positivists, empiricists, and other anti-intellectuals is adequate and often telling.

The second part presents the system of ontology, which the author says is a system of axiological realism. In this context, "realism" is the realism of essence or the universal (as understood by men like Santayana, Whitehead, some of the American neorealists, and some phenomenologists). It is called an "axiological" realism because the author holds that values are as real as other qualities. According to him, being consists of three universes: of essence, of existence, and of destiny, all three of which are equally real. The universe of existence is the field of the singular; singular existents are characterized by movement and change. Existence itself "is defined as that which elects or is elected. . . . Whatever is in process of electing or of being elected, that is, of affecting or being affected, is existing" (p. 284). The universe of destiny is a subordinate universe; "destiny, then, is the direction and movement of existence toward essence, or, in other terms, of actuality toward possibility" (p. 398).

The third part of the book, "Demonstrations and Applications," takes up the special case of epistemology. Here the author shows very well that epistemology is not and cannot be prior to, or independent of, ontology. Then he takes up the systematics of his system, a field which has been but little exploited by metaphysicians with regard to their metaphysics. Finally, the author gives some samples of applications.

There is an elaborate table of contents (ten pages) and a detailed index. [*To be reviewed*]

FLESCH, RUDOLF FRANZ. *The Art of Clear Thinking.* New York: Harper & Bros., 1951. Pp. 219. $2.75.

FRANKFORT, HENRI. *The Birth of Civilization in the Near East.* Bloomington: Indiana Univ. Press, 1951. Pp. 116. $4.00.

FREYTAG GEN. LÖRINGHOFF, BRUNO BARON VON. *Philosophical Problems of Mathematics.* Tr. by Amethe Countess von Zeppelin. New York: Philosophical Lib., 1951. Pp. 88. $2.75.

In three short essays, the author discusses the relation between philosophy and mathematics, philosophical problems of mathematics, and the human aspect of mathematics. The author holds that philosophy and mathematics are distinct sciences. He decides the question of the "being of mathematical objects" by asserting that these objects, though they are conceived as independent subsistences, have the reality of fictions governed by the laws of logic. He distinguishes this question from the mathematical question of the "existence" of a given mathematical object by explaining the latter as a question about the inclusion of that object in a mathematical system. He places the ground of the harmony between mathematics and nature—and so also the ground of the applicability of mathematics to physics—in this, that both mathematical objects and natural objects are governed by the law of identity. In the final essay, the author holds that "intuition" correctly describes the subjective process of discovering mathematical truth and that the explanation of the "formalists" refers to the creation of the mathematical object.

GOOD, FREDERICK L., and KELLY, OTIS F. *Marriage, Morals and Medical Ethics.* New York: P. J. Kenedy & Sons; Nov., 1951. Pp. 202. $3.50.

GUIGO, PRIOR OF THE CHARTERHOUSE. *Meditations.* Tr. with an introd. by John J. Jolin, S.J. Milwaukee: Marquette Univ. Press, 1951. Pp. 84. $2.00.

Guigo (also known as Guigues du Chastel and Guigo de Castro) is perhaps best known as the saintly and influential prior of the Grande Chartreuse; his *Consuetudines* are at the basis of Carthusian legislation. The *Meditations* were composed during his term as prior, but as far as can be judged, with no idea of future publication. But because they are an excellent representative of a certain area of Christian thinking, they rapidly became popular. Guigo's book has some similarities with the better-known *Imitation of Christ* and also with the *Devout Meditations* of William of Saint Thierry. But Guigo is more vigorous than the former; more disconnected and epigrammatic than the latter. The introduction is brief but useful; the translation faithful.

HARPER, F. A. *Morals and the Welfare State.* Irvington-on-Hudson: Foundation for Economic Education, 1951. Pp. 34. Paper, gratis.

HILL, CHARLES LEANDER. *A Short History of Modern Philosophy from the Renaissance to Hegel.* Boston: Meador Pub. Co., 1951. Pp. 180. $3.00.

HOENEN, PIERRE, S.J. *Theory of Judgment according to St. Thomas.* Chicago: Henry Regnery Co. Translation in preparation.

JACOB, E. F. *Some Recent Contributions to the Study of the Later Middle Ages.* An inaugural lecture delivered in Oxford, Feb., 1951. New York: Oxford Univ. Press, 1951. Pp. 30. 60¢

JASPERS, KARL. *Way to Wisdom. An Introduction to Philosophy.* Tr. by

Ralph Manheim. New Haven: Yale Univ. Press, 1951. Pp. 208. $3.00.

Published in Great Britain under the title of *Introduction to Philosophy,* this work is a translation of *Einführung in die Philosophie,* originally given as a series of radio talks in 1949. The book is a simple and rather complete presentation of Jaspers's philosophy. There is an index. [*To be reviewed*]

KANT, IMMANUEL. *Critique of Judgment.* Tr. by J. R. Bernard. New York: Hafner Pub. Co., 1951. Pp. 380. $3.50; paper, $2.25.

LAIDLAW, W. A. *Latin Literature.* New York: Philosophical Lib., 1951. Pp. 229. $2.75.

This short history of Latin literature touches briefly and lightly on the philosophy of Cicero (pp. 67-70) and Lucretius (pp. 70-78); Seneca's moral philosophy is mentioned (pp. 207-8).

Lawyer Looks beyond the Law, The. Issued by the William J. Kerby Foundation. Washington: Catholic Univ. of America Press. Pp. 95. $2.50.

LUCRETIUS CARUS, TITUS. *On the Nature of the Universe.* Tr. from the Latin by Ronald Latham. Baltimore: Penguin Books, 1951. Pp. 256. 65¢

MARCEL, GABRIEL. *The Mystery of Being. II. Faith and Reality.* Tr. by René Hague. Chicago: Henry Regnery Co., 1951. Pp. vii + 188. $3.75.

This volume contains the second series of Gifford Lectures given at the University of Aberdeen in 1950. Having laid down his method in the first series, the author proceeds in this volume to attack the basic problems of philosophy.

The first chapter raises the question of being. It is strongly insisted that being cannot be reached by abstraction, nor from the *cogito,* but from the intersubjectivity of *we are.* The chapters then take up the relation between existence and being, ontological exigence, the legitimacy of ontology, the distinction between opinion and faith, the relation between prayer and humility and between freedom and grace, the nature of testimony, and the relation between death and hope. The last chapter, the conclusion, summarizes the author's view of man, of the present situation in which man finds himself, and of the nature of philosophy. [*To be reviewed*]

MAYER, FREDERICK. *A History of Modern Philosophy.* 2 vols.; New York: American Book Co., 1951. Pp. 669. $5.25.

MONRO, D. H. *Argument of Laughter.* New York: Cambridge Univ. Press, 1951. Pp. 264. $3.75.

MOORE, RUSSELL FRANKLIN. *Bibliography for Oriental Philosophies.* New York: Russell F. Moore Co., 1951. $1.00; paper, 50¢

———. *Readings in Oriental Philosophies.* New York: Russell F. Moore Co., 1951. Pp. 116. $3.00.

MURPHY, W. R. *The Interpretation of Plato's Republic.* New York: Oxford Univ. Press, 1951. Pp. 252. $3.50.

MUSES, CHARLES A. *Illumination on Jacob Boehme. The Work of Dionysius Andreas Freher.* New York: King's Crown Press, 1951. Pp. xvii + 201. $3.50.

Freher (1649-1728) is said to be Boehme's greatest expositor, though he has not been widely studied and his works have not been published. Hence this carefully documented study is an important contribution to our knowledge of an obscure, neglected period of the history of philosophy.

The first part of the book deals with the life and works of Freher. The second part takes up the leading ideas, dealing in particular with the nature of divinity and the problem of evil, the symbolic exposition of the ideas of Boehme in terms of point, center, and circumference, and the seven properties. Here the author has done an excellent job of exposition. There is an appendix, giving the last will and testament of Freher. There is also a bibliography.

OLIVER, W. DONALD. *Theory of Order.* Yellow Springs, Ohio: Antioch Press, 1951. Pp. xi + 345. $5.00.

This is a philosophical study of order, what it is, where it is found, the nature of the beings (entities) which are ordered, and—a point constantly stressed by the author—how we come to know it. The book is divided into four parts: the theory of order, the entity, theory of media, and theory of abstraction.

The work is evidently a product of mature personal reflection. Its positions are subtly nuanced and are influenced by a multitude of thinkers and movements. The book begins with an examination of the cardinal numbers as an instance of order. The author takes issue with an important modern school of mathematics in asserting the connection between number and multitude; and though his own solution does not seem to be definitively proved, he makes an effective point against his opponents. Similarly, he considers and rejects both logical realists and subjectivists with regard to the objectivity of order. In the discussion of abstraction, he devotes a long consideration to the Humean notion of simple ideas and takes a modified realist stand. [*To be reviewed*]

ONIANS, RICHARD BROXTON. *The Origins of European Thought about the Body, the Mind, the Soul, the World, Time, and Fate.* New York: Cambridge Univ. Press, 1951. Pp. 564. $9.00.

PANOFSKY, ERWIN. *Gothic Architecture and Scholasticism.* "The Wimmer Lecture," 1948; Latrobe, Pa.: Archabbey Press, 1951. Pp. xviii + 156, with 60 plates. $4.50.

Considering the well-known fact that the Gothic style came into being and flourished contemporaneously with the growth of Scholasticism, the author tries to establish a relation between them. He finds this relation rather in a common habit of mind than a philosophical theory of art. According to him, this habit has two traits, clarification and the harmonizing of diverse traditions. Clarification, in philosophy, consists in this, that the form of a book makes evident even to the eye the logical form of the thought by its divisions and subdivisions; in architecture, "the membrification of the edifice" enables the onlooker "to re-experience the very processes of architectural composition" (p. 59).

The plates are beautifully printed in black-and-white.

PAYNE, ROBERT. *The Fathers of the Western Church.* New York: Viking Press. Pp. 320. $5.00.

QUINE, WILLARD VAN ORMAN. *Mathematical Logic.* Revised ed.; Cambridge: Harvard Univ. Press, 1951. Pp. 358. $4.75.

REICH, WILHELM. *Cosmic Superimposition.* "Wilhelm Reich Foundation Publication," Rangeley, Me.: Orgone Institute Press, 1951. Pp. 139. $5.50.

———. *Ether, God and Devil.* "Orgone Institute Annals," No. 2; Rangeley, Me.: Orgone Institute Press, 1951. Pp. 127. $4.50.

ROBERT BELLARMINE, ST. *Political Excerpts from* The Pope, taken from the *Third General Controversy.* Tr. by George Albert Moore. Illustrated, with index. "Moore Series of Source Books"; Chevy Chase: Country Dollar Press, 1951. Pp. xiv + 134. $7.65.

ROSS, W. D. *Plato's Theory of Ideas.* New York: Oxford Univ. Press, 1951. Pp. 251. $3.50.

SHELLABARGER, SAMUEL. *Lord Chesterfield and His World.* Boston: Little, Brown & Co. Pp. 456. $5.00.

SHERLEY-PRICE, LEO. *Confucius and Christ. A Christian Estimate of Confucius.* New York: Philosophical Lib., 1951. Pp. 248. $4.75.

This book, published earlier in Great Britain, is written by a chaplain in the Royal Navy. Unlike many books with a similar subject matter, this one does not intend to minimize, belittle, or eliminate from rational consideration any of the doctrines which it discusses. Rather, it is an attempt, made by a sympathetic Christian, to explain the thought of Confucius to Western Christians. In view of the probable importance of China in future world history, well-informed books like this perform an important service both in speculative and practical areas.

There is no index; there is a short bibliography.

SLESSER, SIR HENRY HERMAN. *The Middle Ages in the West.* New York: Macmillan Co., 1951. Pp. 252. $4.50.

Soviet Legal Philosophy. Tr. by Hugh W. Babb, introd. by John N. Hazard. "20th Century Legal Philosophy Series," Vol. V; Cambridge: Harvard Univ. Press, 1951. Pp. xxxvii + 465. $7.50.

The selections in this collection are taken from the writings of Lenin, Stuchka, Reisner, Pashukanis, Stalin, Vyshinsky, Yudin, Golunskii, Strogovich, and Trainin. The first of these selections is a lecture given by Lenin in 1919; the last is an article which appeared in 1945. Soviet philosophy of law, after some early uncertainties, took the position that law is the will of the dominant class, expressed in rules and enforced by the state.

The introduction to this important volume of selections is quietly competent, providing the necessary materials for the understanding of the selections briefly and adequately. There is an index. The whole work keeps to the standard of excellent scholarship established by earlier volumes of the series.

Spinoza Dictionary. Ed. with an introd. by Dagobert D. Runes. Foreword by Albert Einstein. New York: Philosophical Lib., 1951. Pp. xiii + 309. $5.00.

This book defines the most important terms of Spinoza's philosophy by means of one or more quotations from his works and correspondence. As the editor notes, a student who is repelled by the abstruse and rigid structure of Spinoza's writing may be able to enter into his ideas more easily with the aid of this classified set of selections.

The introduction is concerned with Spinoza, scarcely with his ideas. And even there, the one point selected is his relation to the Jewish community. The foreword is insignificant.

TAYLOR, A. E. *Socrates.* Boston: Beacon Press, 1951. Pp. 192. $2.50.

The original American edition of this life of Socrates was published in 1933; it has become one of the classic introductions. The first three chapters, covering the background and life of Socrates, are an excellent use of almost all the available data. The fourth chapter, on the thought of Socrates, is based on the hypothesis, subscribed to also by Burnet, that the Socratic dialogues of Plato represent the thought of the historical Socrates; this hypothesis is not admitted by most other scholars. [Reviewed in THE MODERN SCHOOLMAN, XI (1934), 46-47]

TEALE, A. E. *Kantian Ethics.* New York: Oxford Univ. Press, 1951. Pp. 338. $4.25.

TERTULLIAN, QUINTUS SEPTIMUS FLORENS. *Treatises on Marriage and Remarriage.* Tr. from the Latin by William P. LeSaint. Westminster, Md.: Newman Press. Pp. 203. $3.00.

[THOMAS AQUINAS, ST.] *Aristotle's* De Anima *with the Commentary of St. Thomas Aquinas.* Tr. by Kenelm Foster, O.P., and Sylvester Humphries, O.P. Introd. by Ivo Thomas, O.P. New Haven: Yale Univ. Press, 1951. Pp. 504. $6.50.

St. Thomas is not ordinarily considered a verbose writer, but the translators, to make the *Commentary* "congenial to the modern reader" have used "much excision and compression" (pp. 5-6). They have also seen fit to rearrange clauses and sometimes whole sentences. The result is that we have here what should be called a paraphrase rather than a translation (the edition of Father Angelo Pirotta, O.P., [Turin: Marietti, 1925] is used as the text). Frequently enough the thought is correctly paraphrased; some passages rather badly mutilate the text. A comparison of the two works at intervals brings to light some examples of serious mistranslation: Nos. 263-64, 378, 575, 589-90, 718. In view of the translators' method and results, no scholarly study of St. Thomas's *Commentary* can be done with this present work (on the need for an accurate *technical* translation of the *Commentaries*, see R.P. Ioannes Isaac, O.P., "Saint Thomas, interprète des oeuvres d'Aristote," *Scholastica Ratione Historicocritica Instauranda* [Rome: Pontif. Athenaeum Antonianum, 1951], pp. 355-63). For a reader ignorant of Latin, and interested only in getting a general idea of St. Thomas's thought, this translation might be of some use.

The translators and the author of the introduction state emphatically that they are translating William of Moerbeke's version of Aristotle's *De Anima.* We are not told where this text is to be found; a comparison with the version printed in the Pirotta edition shows that the latter is the source. Now, the Pirotta text is the *translatio antiqua* of the older editions; the *antiqua* is a hybrid (contaminated) text (cf. Gérard Verbeke, "Les sources et la chronologie du Commentaire de s. Thomas d'Aquin au De Anima d'Aristote," *Revue philosophique de Louvain,* XLV [1947], p. 321, note 19; M. D. Chenu, O.P., *Introduction à l'étude de s. Thomas d'Aquin* [Paris: Vrin, 1950], p. 186, note 1). The unsatisfactory state of this text could have been discovered by a comparison with the passages of the Moerbeke translation contained in *Aristoteles Latinus* (ed. George Lacombe; Rome: Libreria dello Stato, 1939, pp. 136-37), or by adverting to the discrepancies already noted by Fr. Pirotta (for example, p. 125, note 3). Fr. Thomas, in his introduction, comments on a number of difficult passages in the *Commentary* (pp. 31-37); many of these difficulties arise from the misconception that St. Thomas was commenting on the text as offered in the *antiqua.*

———. *On The Virtues (in General).* Tr. with introd. and notes by John Patrick Reid, O.P. Providence: Prividence College Press, 1951. Pp. xxix + 188. $3.00; paper, $2.00.

This translation of the *Quaestio Disputata de Virtutibus in Communi* does not attain literary elegance, but it has the indispensable virtue of accuracy. Students of St. Thomas can use it with confidence.

The introduction, as the translator tells us, is largely based on the introduction to the Marietti edition of the *Quaestiones Disputatae* (1949) and offers very little original matter. The footnotes identify passages quoted or referred to by St. Thomas, or at times give brief, often jejune explanations of points alluded to. Appendix I gives an outline of each of the thirteen articles of the question. Appendix II (pp. 138-76) contains a series of "detached notes" to the text. These notes usually consist of other passages of St. Thomas, also translated, or of explanations of doctrinal points quoted from standard Thomistic authors. There are also two appendices of works cited, and an index.

———. *Philosophical Texts.* Selected, translated, annotated, and with an introd. by Thomas Gilby, O.P. New York: Oxford Univ. Press, 1951. Pp. xxii + 405.

The 1124 texts chosen vary in length from single sentences to several paragraphs; they are taken from the major works of St. Thomas. The translator has grouped them under the following headings: science and wisdom, the existence of God, his nature, his activity, creation, variety in being, the problem of evil, body and spirit, human nature, consciousness, love, happiness, morality, feeling and training, the virtues, living beyond reason, reasonable virtues, justice, law, and community and society. The introduction is biographical and appreciative; there is a detailed index.

The book may serve for meditative reading or help a man who is not a philosopher gain some appreciation of St. Thomas. But serious students of philosophy should be warned that this is another "elegant translation," which does not shrink from extensive condensation without any indication to the reader. Selection 9 will serve as an example. The Latin text runs to 378 words, the translation to 322. A more serious defect is the loss of precision. Text 9 is a pithy and highly technical section from St. Thomas's *Exposition of Boethius's De Trinitate.* Now, where St. Thomas wrote "scientias . . . dividi per differentias speculabilium in quantum speculabilia sunt," the translator puts down "should be divided by the different pitch of truths in the very medium of theory." St. Thomas wrote technical treatises; to render them as if they were literary effusions is a gross disservice.

WALSH, WILLIAM HENRY. *An Introduction to the Philosophy of History.* New York: Longmans, Green & Co., 1951. Pp. 173. $2.00; text ed., $1.60.

WARBEKE, JOHN M. *The Power of Art.* New York: Philosophical Lib., 1951. Pp. ix + 493. $6.00.

This is a rich and comprehensive discussion of aesthetic quality and experience, sculpture, poetry, painting, music, drama, and architecture. Interspersed are discussions of the relations between aesthetic experience and history, industry, morals, religion, and philosophy. Though this book might be considered primarily a work on aesthetics, the philosophical training and interests of its author are evident throughout. Yet in his formal discussion of the relation between philosophy and art, the author discards most attempts at a philosophy of art as worthless and at best as of only incidental or negative significance. There is an index. [*To be reviewed*]

WASSERMAN, LOUIS. *Modern Political Philosophies, and What They Mean.* Garden City: Garden City Pub. Co., 1951. Pp. 379. $1.98.

WHITELEY, C. H. *An Introduction to Metaphysics.* Boston: Beacon Press, 1951. Pp. xii + 174. $2.50.

Originally published in England, this little book has a charming and informal style that seems to be a special gift of British writers. It is also British in other ways. The author treats the relation between metaphysics and other branches of knowledge in a Baconian fashion. He takes up the topics of the nature of the real world (is it matter or an idea?), of the existence of God and the proofs of that doctrine, the problem of evil, and the evidence of religious experience.

The general position of the author seems to be a nonreductionist materialism (he hesitates about accepting the doctrine of emergent evolution) of the type propagated in this country by Sellars and his associates. His critiques of the "cosmological" argument and the "argument from design" are superficial and unoriginal.

There is a glossary of philosophical terms and an index.

WILLIAMS, GARDNER. *Humanistic Ethics.* New York: Philosophical Lib., 1951. Pp. xii + 223. $3.75.

According to the author, who is one of the better-known proponents of "scientific humanism," this book makes three main points: (*a*) that the principle of ethics is hedonic individual relativism, but at the same time social obligations are valid; (*b*) that free will is based on an absolute causal determinism ("psychological" determinism to the "greater" or preferable good); (*c*) that the true reality of religion fits into a metaphysics of emergent evolutionary naturalism ("naturalism" taken in the sense of a denial or ignoring of the supernatural and cosmic finality).

The first point is well argued; its only difficulty is that it rests on an erroneous concept of man. The theory of psychological determinism is argued diffusely but not well; the author bases it mainly on his emergent materialism. The third point is a well-meant but muddled attempt to be sympathetic. (Page 215 contains a nice bit of history that never happened.)

WILLIAMS, HENRY HORACE. *Logic for Living. Dialogues from the Classroom.* Ed. by Jane Ross Hammer. Foreword by Frank Porter Graham. New York: Philosophical Lib., 1951. Pp. xix + 281. $3.75.

This book is composed of stenographic reports of the class lectures of Professor Williams, together with introductions and transitions (printed in italics) added by the editor. The content of the lectures is "logic" in a special sense; it could also be called "an introduction to idealist philosophy." The book is useful as an example of the method of a successful teacher and as a rather concrete and simple (but somewhat roundabout) introduction to an absolute idealism which stresses personal values.

WOLF, HEINRICH FRANZ. *Philosophy for the Common Man.* New York: Philosophical Lib., 1951. Pp. 221. $3.50.

YOUNG, J. Z. *Doubt and Certainty in Science.* "B. B. C. Reith Lectures," 1950; New York: Oxford Univ. Press, 1951. Pp. 174. $2.50.

BOOKS RECEIVED

BOKSER, RABBI BEN ZION. *The Wisdom of the Talmud.* New York: Philosophical Lib., 1951. Pp. xx + 180. $3.75.

BROWN, LENNA WILLIAMSON. *Analysis of Reality.* Lawrence, Kansas: Allen Press, 1951. Pp. 51. $2.00.

BRYAR, WILLIAM. *St. Thomas and the Existence of God. Three Interpretations.* Chicago: Henry Regnery Co., 1951. Pp. xxv + 252. $5.00.

CHUDOBA, BOHDAN. *The Meaning of Civilization.* New York: P. J. Kenedy & Sons, 1951. Pp. xi + 314. $4.00.

CONZE, EDWARD. *Buddhism.* Preface by Arthur Waley. New York: Philosophical Lib., 1951. Pp. 212 + tables and index. $6.00.

DEMAN, THOMAS, O.P. *Aux origines de la théologie morale.* "Conference Albert le Grand," 1951; Montreal: Institut d'études médiévales, 1951. Pp. 115.

FEIBLEMAN, JAMES K. *Ontology.* Baltimore: Johns Hopkins Press, 1951. Pp. xix + 807. $9.75.

Fifty Years of the American Novel: 1900-1950. Ed. by Harold C. Gardiner, S.J. New York: Chas. Scribner's Sons, 1951. Pp. xiv + 304. $3.00.

FREYTAG GEN. LÖRINGHOFF, BRUNO BARON VON. *Philosophical Problems of Mathematics.* Tr. by Amethe Countess von Zeppelin. New York: Philosophical Lib., 1951. Pp. 88. $2.75.

GUIGO, PRIOR OF THE CHARTERHOUSE. *Meditations.* Tr. with an introd. by John J. Jolin, S.J. Milwaukee: Marquette Univ. Press, 1951. Pp. 84. $2.00.

HERRLIN, OLLE. *The Ontological Proof in Thomistic and Kantian Interpretation.* "Acta Universitatis Upsaliensis"; Uppsala: Lundequistska Bokhandeln, 1950. Pp. 115. Paper, 4:50 kr.

HUNT, B. P. W. STATHER. *Primitive Gospel Sources.* New York: Philosophical Lib., 1951. Pp. xv + 344. $6.00.

JASPERS, KARL. *Way to Wisdom. An Introduction to Philosophy.* Tr. by Ralph Manheim. New Haven: Yale Univ. Press, 1951. Pp. 208. $3.00.

KRIMSKY, JOSEPH HAYIM. *Jesus and the Hidden Bible.* New York: Philosophical Lib., 1951. Pp. vii + 79. $2.75.

LAIDLAW, W. A. *Latin Literature.* New York: Philosophical Lib., 1951. Pp. 229. $2.75.

MARCEL, GABRIEL. *The Mystery of Being. II. Faith and Reality.* Tr. by René Hague. Chicago: Henry Regnery Co., 1951. Pp. vii + 188. $3.75.

MELVILLE, ANNABELLE M. *Elizabeth Bayley Seton.* New York: Chas. Scribner's Sons, 1951. Pp. xvii + 411. $4.00.

MUSES, CHARLES A. *Illumination on Jacob Boehme. The Work of Dionysius Andreas Freher.* New York: King's Crown Press, 1951. Pp. xvii + 201. $3.50.

OLERUD, ANDERS. *L'Idée de Macrocosmos et de Microcosmos dans le Timée de Platon.* Uppsala: Almquist & Widsells Boktryckeri, 1951. Pp. vii + 236. 15 kr.